Government of Saskatchewan

Annual Report 1985-86

Saskatchewan Highways and Transportation

Table of Contents

Minister ____ iii
Deputy Minister ____ iv
Organization Chart ____ v
Mission and Objectives ____ vi
Traffic Safety Engineering Branch ____ 1
Public Communications Branch ____ 3
Operations Division ____ 5
- Operations Services Branch
- Bridge Branch
- Works Branch
- District Offices:
  - Swift Current
  - Regina
  - Yorkton
  - Saskatoon
  - Prince Albert
  - North Battleford

Construction Accomplishments ____ 20
Engineering Division ____ 23
- Road Design Branch
- Equipment Branch
- Surfacing Branch
- Maintenance Branch
- Geotechnical Branch
- Materials Testing Branch

Transportation Planning and Research Division ____ 30
- Planning Support Branch
- Technical Research Branch
- Transportation Policy Branch
- Transportation Systems Branch
- Capital Program Planning Branch

Regulation and Traffic Safety Division ____ 41
- Highway Traffic Board Services Branch
- Driver and Vehicle Safety Services Branch
- Transport Services Branch

Support Services Division ____ 47
- Human Resource Branch
- Management Services Branch
- Property Services Branch
- Financial Services Branch

Letter of Transmittal

The Honourable Frederick W. Johnson
Lieutenant Governor

Sir:

It is my pleasure to submit to you the 1985-86 Annual Report for Saskatchewan Highways and Transportation.

Following a review of this report, I feel confident that not only are we fulfilling our mission to provide a safe and reliable transportation system, we are also building for the future. A great deal of credit for this progressive outlook must be directed to the employees. Thanks to their dedication, the citizens of our province enjoy one of the best transportation systems in our country.

Yours sincerely,

Grant Hodgins
Minister

April 1, 1986

The Honourable Grant Hodgins
Minister of Saskatchewan Highways and Transportation

Sir:

I am pleased to present to you the annual report of Saskatchewan Highways and Transportation for the fiscal year ending March 31, 1986. This report provides a detailed review of all Department activities.

Rapid changes are taking place in Canada's transportation system and its related industries. These changes are certainly affecting the role of transportation in Saskatchewan. Staff of the Department have spent considerable time during the past year addressing these issues.

The Federal Government's proposed revisions to the National Transportation Act and the Western Grain Transportation Act will have a major impact on the province's transportation policies and a significant effect on the provincial economy. A joint Transport Canada/Saskatchewan study on rural transportation development was initiated during the year. As well, a proposal for alternate methods of grain collection on grain dependent branch lines was presented to the Federal Government through the McDonough Branch Line Inquiry.

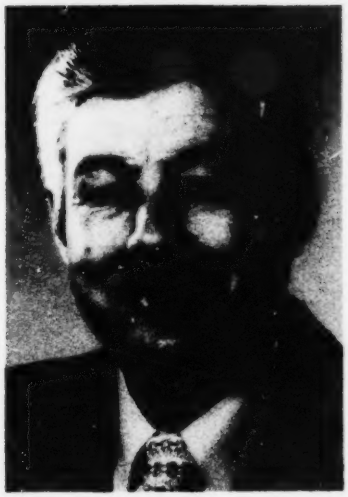
The Department is placing a greater emphasis on a broad range of research areas. One specific area is related to increasing transportation productivity and efficiency in the Trucking Industry. Two major initiatives in regulatory reform were undertaken, namely an ease-of-entry commodity list in conjunction with Manitoba and Alberta, and public information meetings related to reverse onus.

The Provincial Dangerous Goods Act was passed in June and revisions were made to the Highways Act to allow additional signing for Rural businesses not adjacent to a provincial highway.

The Department introduced a major multi-media safe driving campaign and continued to emphasize through the media the importance of School Bus Safety.

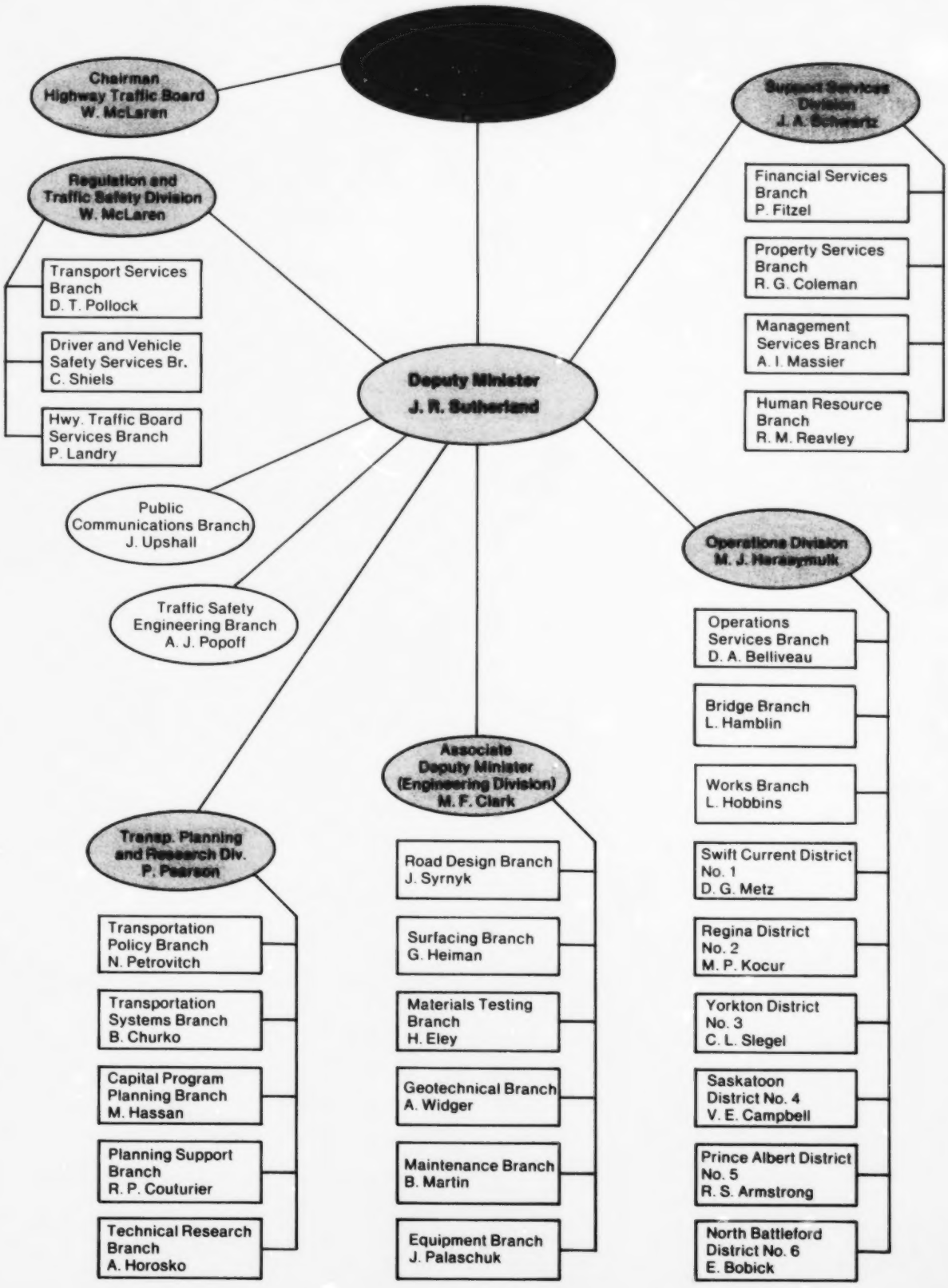
Emphasis continues to be placed on the enhancement of computer based management systems. Branch organization reviews have been carried out in the financial services, operations services and the bridge branch with the objective of improving the overall managerial competence of the Department. The Department continues to evaluate the latest technology in the field of systems and communications. A study of our five year electronic technology needs has been completed.

1985 has been a very challenging year for all Department staff and I want to compliment them for their dedicated efforts in providing efficient transportation services to the travelling public throughout the province.



J. R. Sutherland, Deputy Minister

Organization Chart As of March 31, 1986



Major Objectives

- To formulate policies and programs for the purpose of developing improved transportation systems for the province.
- To provide continued emphasis to improve traffic safety.
- To concentrate on productivity improvements to achieve the best return from public funds committed to transportation.
- To provide and maintain the provincial highway system at an acceptable level of service and safety to all users.
- To provide transportation facilities necessary for social betterment and resource development.
- To assist urban centres in the development of highway connectors through urban areas.
- To provide assistance to improve and operate community airports throughout the province.

Mission

To plan, implement and manage an integrated multi-modal transportation system which provides for the safe, efficient movement of people and goods at a level of service acceptable to the public for the economic and social development of the province, within the mandate and resources provided by the Government of Saskatchewan.

Traffic Safety Engineering Branch

Al Popoff

The objective of the branch is to reduce traffic accidents, deaths and injuries in Saskatchewan, with special emphasis on provincial highways. To achieve this objective the branch is responsible for the following activities:

- managing a central traffic accident information system for Saskatchewan and providing relevant data to all users.
- investigating traffic accident locations and related traffic engineering studies.
- developing and monitoring an annual traffic safety improvement program for provincial highways.
- studying and recommending appropriate levels of posted speeds on highways.
- administering access control along major provincial highways.
- Managing the traffic control devices along provincial highways to ensure uniformity and adequacy.

Traffic Accident Information System

The Traffic Accident Information System (TAIS) has completed its 7th year of successful operation. Detailed information about 280,000 accidents is available to those responsible for traffic safety. The data is used to develop and monitor accident countermeasure programs. Educators and researchers find TAIS an important resource.

An annual report was published that summarized all traffic accidents. 3,800 copies of the report and 10,000 pamphlets highlighting TAIS information were distributed.

The system also makes available customized monthly and quarterly reports to user agencies. These detailed reports provide safety management information on a local basis. For example at year end the following were distributed:

- 125 RCMP detachments (4 reports each) — 500 reports
- 299 rural municipalities — 299 reports
- 12 cities (14 reports each) — 168 reports
- 57 large towns (2 reports each) — 114 reports

A second year of decentralized data entry has been successful. The branch entered 95% of the police accident reports directly to the computer facilities at Sask Comp.

Safety Improvements

The department continues to give emphasis to safety improvements on provincial highways. Programs for overall system improvements and spot problem areas have been very effective. In the past 12 years the injury and accident rates on provincial highways have decreased by 52%. In real terms this means hundreds of lives saved and thousands of injuries averted.

The concept of the "forgiving highway" and "building safety into highways" pays ongoing dividends on the capital investment. Projects and programs such as guiderails, channelization, approach flattening, breakaway sign posts, flashing lights, railway crossing signals and lighting upgrades safety and improves operations.

Traffic Control Devices

Good signing and traffic controls make an important contribution to traffic safety and efficient operations. Highway signs warn drivers, indicate regulatory requirements and provide navigational information and inform drivers about facilities and points of interest.

The branch developed various policies, programs, standards and sign designs for use on provincial highways. 48,000 signs were ordered to meet the department's needs.

A program was started to upgrade the provincial highway route markers to be in keeping with uniform colors and the Saskatchewan Identity Program.

Symbol signs were developed for Water Slide and Vacation Farm operators. They now have the opportunity to apply for official highway signs.

The branch completed a review of private signing adjacent highways. The Highways Act was amended to allow some additional sign categories. Rural businesses not adjacent a provincial highway can be permitted to erect identification signs.

Other Safety Activities

The branch has a mandate to be involved in a variety of educational and safety promotional activities.

- The Seat Belt Survivor's Club is managed by the branch. 2,650 members are enrolled, each with a personal testimony that seat belts reduced injury or saved their life.
- The branch prepared and presented an international technical paper on the effectiveness of seat belt use in Canada.
- The branch liaisoned with enforcement agencies. Twenty police detachments were visited.
- The branch participated with the Saskatchewan Safety Council in management and delivery of safety programs.
- The branch reviewed and consolidated Control of Access Regulations.

Total Number of Accidents By Road System

Year	1979	1980	**1981	1982	1983	***1984	1985
Highways	5,921	6,005	6,211	6,008	5,561	4,877	5,061
Rural	5,007	5,403	5,631	5,154	4,753	4,025	4,071
Urban	33,386	33,538	25,510	28,487	28,921	23,208	23,117
*Other	3,196	3,328	933	717	620	536	450
Total	**47,510**	**48,274**	**38,285**	**40,366**	**39,855**	**32,646**	**32,699**

Injuries By Road System

Year	1979	1980	1981	1982	1983	1984	1985
Highways	2,318	2,407	2,266	2,155	1,967	1,822	1,984
Rural	1,616	1,684	1,772	1,598	1,477	1,421	1,465
Urban	4,685	4,301	4,350	4,510	4,597	4,453	4,820
*Other	462	492	272	253	221	208	196
Total	**9,081**	**8,884**	**8,660**	**8,516**	**8,262**	**7,904**	**8,465**

Fatalities By Road System

Year	1979	1980	1981	1982	1983	1984	1985
Highways	143	140	139	118	126	105	100
Rural	55	62	67	61	53	61	48
Urban	64	43	49	52	39	44	46
*Other	28	20	7	9	17	11	20
Total	**290**	**265**	**262**	**240**	**235**	**221**	**214**

* Other Locations include accidents that occurred in areas such as Parks, Indian Reserves, Provincial Forest Roads, or other areas not defined as a Provincial Highway, Rural Road, or Urban Street.

** Beginning in 1981, private property accidents were not recorded on T.A.I.S.

*** Beginning in 1984, the minimum reporting threshold for property damage accidents increased from $200 to $500.

Public Communications Branch

Jack Upshall

The mission of the Public Communications Branch is to communicate a positive identity of the Department of Highways and Transportation through educational and informational programs.

Branch staff achieve this mission by setting and adhering to four primary objectives:

- effectively communicating inter-branch activities, department policies, and changing trends in the transportation industry.
- gathering and assessing information to assist in the development of programs and projects to be communicated to the public.
- establishing approval systems, production procedures and distribution systems as they apply to communication materials.
- adhering to a professional code of ethics as set out by recognized communications associations.

In addition to these primary objectives, Public Communications Branch performs two mandatory responsibilities.

- The branch coordinates the production and distribution of official and statutory publications.
- The branch provides an information service for public inquiries.

Highlights

The 1985-86 fiscal year proved to be just as busy and exciting as the previous fiscal year. Branch staff continued with a variety of programs initiated the year before, and introduced a major multi-media safe driving campaign.

However, the highlight of the year was the official opening ceremonies for the new Borden Bridge. Branch staff were responsible for the planning and preparation of the event held on September 29, 1985. Good weather and community co-operation combined to attract 10,000 people to the ceremony.

Premier Grant Devine, the Hon. James Garner and a host of dignitaries and officials presided over the official opening ceremonies. Special mention to the District Engineer and staff of Saskatoon District is deserved. Thanks to their co-operation and organization, the large crowd was easily accommodated.

During Safe Driving Week, December 1 to 7, the department introduced a major multi-media campaign entitled, 'Hockey Is A Contact Sport — Driving Isn't'. Featured in the campaign was Terry Simpson, coach of the Prince Albert Raiders who at the time, were the Memorial Cup Champions. The campaign appeared on television, billboards and newspapers, and featured Mr. Simpson and players from the Prince Albert Raiders and Regina Pats organizations. In his address in reply to the budget address in April 1986, the Minister of Highways and Transportation, the Hon. Grant Hodgins, paid tribute to Mr. Simpson and the players of both teams. The campaign concluded in March 1986.

During September and October of 1985, radio, television, billboard and newspaper media were used to emphasize the importance of School Bus Safety. This was a continuation of a campaign introduced in the fall of 1985.

To complete the family of driver handbooks, 15,000 Motorcycle Driver's Handbooks were produced. This project's completion now concludes the updating and re-writing of driver's handbooks including the General Driver's Handbook which was undertaken in the previous fiscal year.

The 60 km/h Highway Worker Safety Campaign was continued. There were 6,000 information kits distributed that included a project construction map and pamphlet outlining driver's responsibilities in 60 km/h zones.

In the spring of 1986, the branch conducted a public awareness campaign which notified highway users that spring bans would soon be in effect. This was the continuation of a program that started in the previous fiscal year.

Official Publications

There were 550,000 Official 1986 Highway Maps printed and distributed. This 1986 edition featured the Enroute Expo theme and highlighted the four major east/west tourist routes through the province.

Branch staff co-ordinated the printing and publication of the 1984-85 Annual Report for the Department of Highways and Transportation. Two thousand copies were printed and distributed.

Branch staff co-ordinated the printing of the Traffic Accident Information System (TAIS) Report and Pamphlet. There were 4,600 TAIS Reports printed and 10,000 pamphlets printed.

Branch staff produced 6,000 copies of the Construction Map. In addition, the branch produced 5,000 copies of the 1984-85 Construction Project Listing.

Information Services

Approximately 1,451,521 pieces of information were distributed to the public through Public Communications Branch. There were approximately 3,118 telephone enquiries received on the general inquiry line.

There were 278 news releases prepared and 13 information pamphlets prepared and distributed by branch staff. News releases plus the quantities from the pamphlets brought the total distribution of information pieces to 192,200. There were 401,300 forms and letters prepared and distributed by branch staff.

A number of public information campaigns not previously mentioned were also conducted. The Highway Hotline information campaign, Ease of Entry notifications and the introduction of Transportation of Dangerous Goods Regulations were carried out. The branch also distributed the informative Before You Build poster.

Branch staff participated in a number of displays including the Saskatchewan Roadbuilders Convention, the Lloydminster Exhibition, the Saskatchewan School Trustees Association Education Exposition and the Transportation of Dangerous Goods display at the Saskatchewan Association of Rural Municipalities annual meeting.

In addition to the Borden Bridge official opening, the branch participated in the official opening of the Rosetown Repair Depot and arranged the road improvement dedication on Highway No. 13 near Eastend.

The branch continued to revise and improve the department's newsletter, In Motion. The popularity of In Motion is directly attributed to the Editorial Board members who contribute their stories and ideas.

Dignitaries parade at the official Borden Bridge opening on September 29, 1985.

An aerial view of the old and the new.

Operations Division

The Operations Division is responsible for the implementation and administration of the operational programs and managing the designated provincial transportation facilities for the department within the specified levels of service and resources. The Operations Division responsibilities are carried out through six districts and three head office branches.

Construction activities commenced with excellent production being experienced during the spring and early summer of 1985, however, rainfall in August and September in a number of areas delayed the completion of several projects which had to be carried over to 1986. The Borden Bridge and approaches were officially opened in September. The first section of Highway No. 41 west of Wakaw was completed and opened to traffic. Winter work was carried out on Highway No. 106 with most of the earth excavation completed. In total, 343 km of grading and 594 km of surfacing were completed.

The riding quality of the highway system has been maintained during the last year. Many of our pavements, because of their age and condition, will require extensive rehabilitation in the next few years. In general, we had a mild winter which presented a number of icing conditions. Winter snowfall was near normal with no major problems experienced.

Some minor organization changes were made in Operations Division during the year. The consultant's recommendations on organization changes in Bridge Branch and Operations Services Branch were implemented. A reassignment of duties was carried out in the Saskatoon District.

The department continued to place emphasis on safety improvements throughout the province. Lighting was carried out at 92 locations on the highway system. The department assisted 43 local governments in improving highway routes through their communities and 34 local governments in improving and maintaining their airports.

Details of specific programs and accomplishments are provided in the following individual branch and district reports.

M. J. Herasymuik
Executive Director
Operations Division

Grant Hodgins
Minister, Highways
and Transportation

J. R. Sutherland
Deputy Minister

M. J. Herasymuik
Operations Division

D. A. Belliveau
Operations
Services Branch

Bridge Branch
L. Hamblin

Works Branch
Len Hobbins

D. G. Metz
Swift Current
District No. 1

M. P. Kocur
Regina
District No. 2

C. L. Siegel
Yorkton
District No. 3

V. E. Campbell
Saskatoon
District No. 4

R. S. Armstrong
Prince Albert
District No. 5

E. Bobick
North Battleford
District No. 6

Operations Services Branch

Operations Services Branch provides executive, technical and financial services to the Operations Division.

Major Activities

Management of centralized activities related to tendering, scheduling and contract administration.

Development and control of department annual capital and maintenance programs and budgets.

Administration of purchasing construction and maintenance materials.

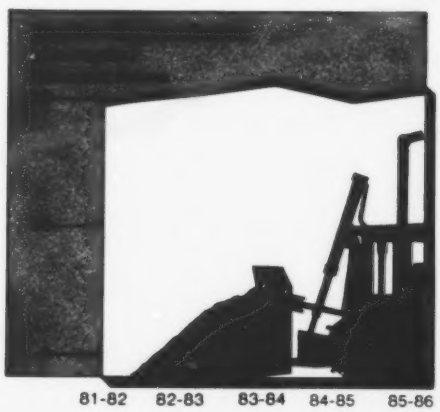
Co-ordination of cost-shared programs.

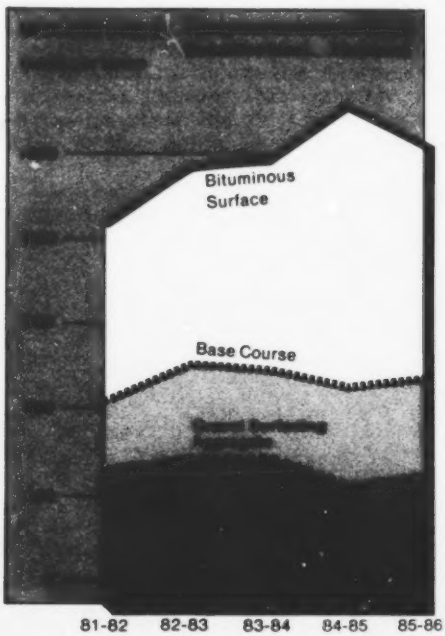
Construction Tenders

One hundred and twenty-two construction tenders valued at $54 million were awarded during 1985-86. In comparison with the previous year, 18 more tenders were issued with a $6 million decrease in the value of contracts awarded.

Contracts are tendered throughout the year to provide a balanced workload for contractors. In the fall and winter, heavy emphasis is placed on processing aggregates so that much of the hauling can be done in the winter to minimize damage to haul routes and to create winter work.

Unit bid prices for earth work, sub-base, base-course and gravel surfacing aggregate increased slightly while bituminous surface course decreased compared to the previous year.

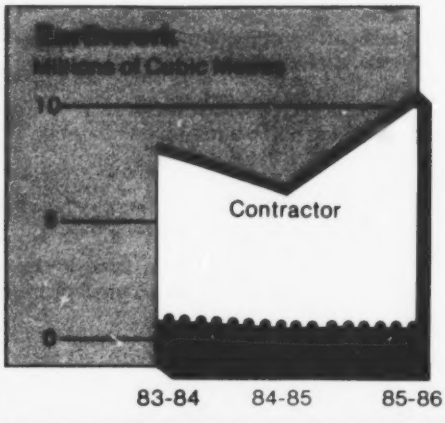




Grading

The amount of earth excavation work completed during the year was 10 573 230 m^3.

There were 343 km of new construction completed with 66 km grading work under way at year end.



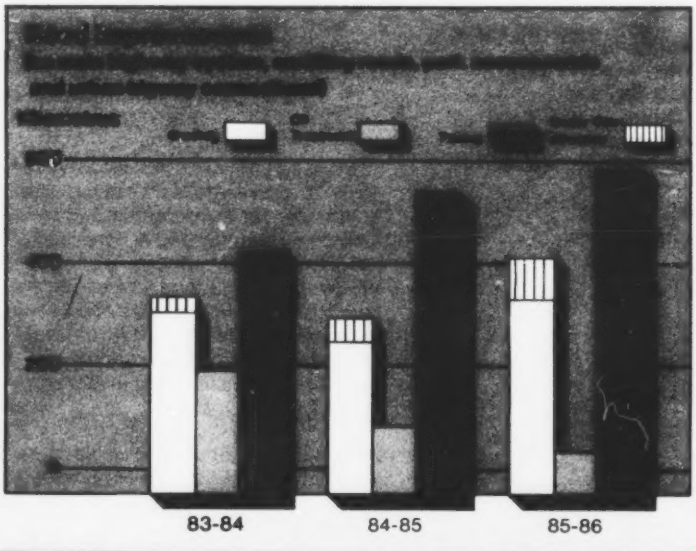
Surfacing

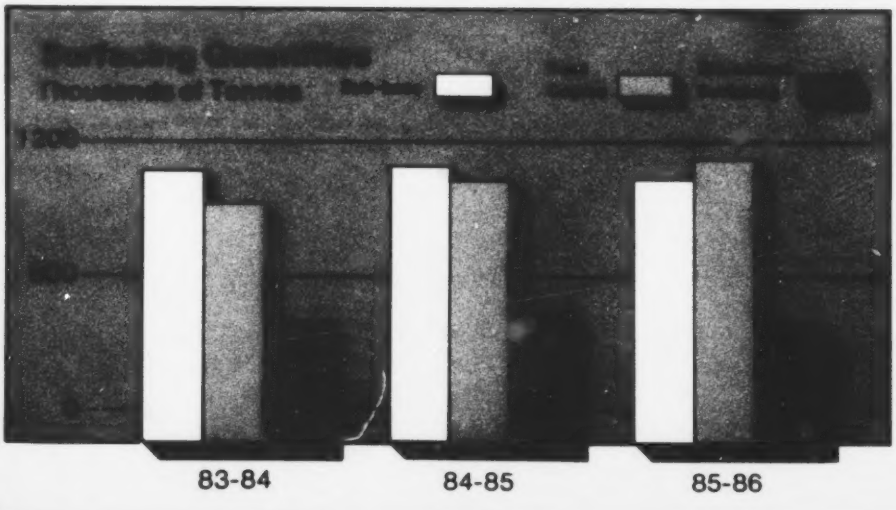
The quantity of bituminous mix used on contracts in 1985-86 decreased to 393 355 t from 549 034 t. The quantity of sub-base and base material used in 1985-86 increased to 2 148 542 t from 2 035 417 t in 1984-85.

During the year 43 km of oiling, 115 km of pavement C, 274 km of pavement and 162 km of rehabilitation pavement were completed.

Urban Surface Transportation

Under the Urban Assistance Program $4,988,344 was provided to assist 43 communities to improve provincial highway routes.





Air Transportation Program

Thirty-four local governments participated in the Airport Assistance Program administered by the branch. The department provided $201,758 in assistance under the program. The department also spent $47,519 towards the installation of non-directional beacons at four airports. $178,875 in capital costs was spent at two provincial airports.

Rural Transportation Assistance Program

Operations Services Branch administered a program to provide transportation services to communities in rural areas not presently served by other public transportation.

The provincial government, through the Department of Highways and Transportation, underwrites the net operating cost of seven routes which totalled $142,551 in 1985-86.

In addition to the above routes, Operations Services also administered the bus lines into Sandy Bay and Deschambault in Northern Saskatchewan. During the year, $82,261 was spent on these two northern feeder services lines.

Other Highlights

Automatic railway crossing signals were installed at eight locations during the year at a cost of $47,543.

The department provided lighting at 77 highway intersections and 15 access roads at a cost of $395,817.

71,019 calls were handled on the department's Hotline Winter Road Information Service.

Three hundred purchase orders for construction and maintenance materials valued at $36,831,000 were processed.

Seven hundred and twenty-two payments to contractors were processed totalling $61,628,555.

Bridge Branch

The Bridge Branch mission is to design, construct, maintain and manage the bridge component of the department's road transportation system, and to provide a source of structural and bridge-related expertise for other department and government units, to established levels of service and within available resources.

Design

Design work was undertaken for four precast concrete and timber bridge projects involving approximately 1 400 m^2 of roadway area. Plans were also prepared for traffic barrier retrofits totalling 1 220 m of barriers and involving 14 bridges.

The branch also prepared details and plans for a new dock at Wollaston Post.

Construction

Construction was completed for the major bridge located on Highway No. 16 over the North Saskatchewan River near Borden. Traffic began using the new structure on September 27, 1985, and the bridge was officially opened on September 29, 1985.

Construction continued on the major bridge located on Highway No. 17 over the North Saskatchewan River north of Lloydminster. A contract was awarded for the supply of structural steel and this work phase was successfully completed. Another contract was awarded for the completion of the site work; subsequently all substructure units were finished and the structural steel girders were put in place.

A major betterment was completed on a 370 m bridge located on Highway No. 4 north of Swift Current. The work included restoration of the reinforced concrete deck surface, installation of a waterproofing membrane and the re-installation of the asphaltic concrete wearing surface.

Four new bridges were constructed using standard modular components of precast concrete.

Maintenance

Bridge deck restorations were undertaken on four grade separation structures located near Moose Jaw. Two of the projects involved the use of a high density concrete overlay. Cathodic protection systems were installed on the other two structures as a pilot project, and monitoring of this repair system was initiated.

Minor repairs were completed on another 131 bridges located throughout the highway system. Nine bridges were replaced by culvert installations.

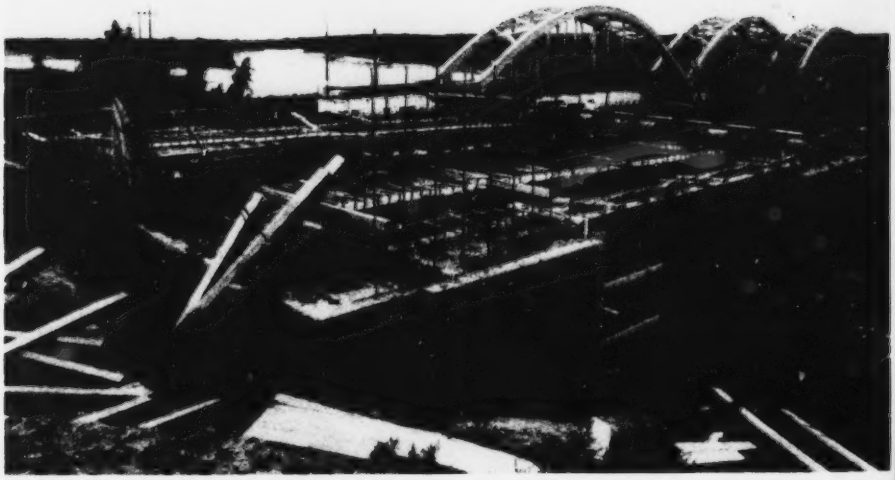
Other Highlights

Programmed inspections were done on 180 bridges and the concrete decks of 49 bridges were monitored for the corrosion rate of the reinforcing steel.

The branch assisted in the evaluation of 20 overload permit requests associated with the bulk commodity haul policy, and reviewed 700 referrals for permits for single trip overloads.

Summary of Bridge Work Done During 1985-86 on Provincial Highways

Highway and Control Section Numbers	Location	Description of Work
1-12	Over CNR near Moose Jaw.	Cathodic Protection installation on two concrete bridge decks.
2-6	Over Highway No. 1 at Moose Jaw.	Major deck repairs to two 70 m four span interchange bridges.
4-6	Over South Saskatchewan River north of Swift Current.	Major deck repairs to 370 m, seven span girder bridge.
16-23	Over North Saskatchewan near Borden.	Completed construction of 301 m five span steel girder bridge.
17-7	Over North Saskatchewan River north of Lloydminster.	Construction continued for a 384 m steel girder bridge.
26-3	Over Turtle River near Turtleford.	Install steel traffic barrier on 6 m wood pile bridge.
43-3	Over Notekeu Creek east of Vanguard.	Construct 36 m three span bridge with precast concrete deck.
106-01	Over White Gull Creek north of Smeaton.	Construct 30 m two span bridge with precast concrete deck.
106-03	Over Jay Jay Creek north of Smeaton.	Construct 15 m span bridge with precast concrete deck.
335-02	Over Carrot River west of Armley.	Construct 45 m three span bridge with precast concrete deck.



Close up of abutments for the Borden Bridge during construction. The bridge was officially opened on September 29, 1985.

Works Branch

Works Branch functions in four main areas: grading; surfacing; bridges and winter road construction. The branch provides these and other specialized construction services for the Department of Highways and Transportation and other government departments and agencies.

The branch employs between 120 and 160 people during the construction season. These include equipment operators, truck drivers, plant operators, cooks, administrative personnel and supervisors. The nature of the work usually requires people to be away from home for long periods of time, working out of mobile self-contained camps.

Grading Section

One grading crew moved 592 000 m^3 of earth material during the fiscal year on Control Sections 106-02 and 106-03 in the vicinity of Big Sandy Lake and the Puskwakau River. The quantities moved include 62 690 m^3 of select sand material on Control Section 106-02 and 21 000 m^3 moved by hired trucks to raise the grade on Control Section 106-03 in the Puskwakau River area for district maintenance. Also included in the above quantity is 140 000 m^3 of earth material moved during the months of February 17 to March 18, 1986 with a 50-50 mix of private and government equipment.

Surfacing Section

Three surfacing crews completed various road and custom work projects throughout the province. Projects include cold mix bituminous surface coarse, lime stabilization, soil stabilization with reject potash salt, thermopatch, subgrade preparation and deep patching.

The crews completed 28.07 km of cold mix bituminous surface coarse and 11 oil surface custom work jobs throughout the province for various rural municipalities and villages; filled 11,903 depressions and 18 506 m^2 of wheel ruts on various highway surfaces; did a custom work job for the City of Swift Current and made repairs to the landing strip of the Rosetown Airport with the use of the sand-sulphur-asphalt mix.

Bridge Section

The six bridge crews constructed 25 new bridges and repaired 166 bridges for the Department of Highways and Transportation, the Department of Rural Development, Duck's Unlimited and the Water Resources Board. A total of 2699 m^2 of high density concrete overlay were placed on four bridges in the Moose Jaw area. Major deck repairs were made to the Saskatchewan Landing Bridge over the South Saskatchewan River north of Swift Current.

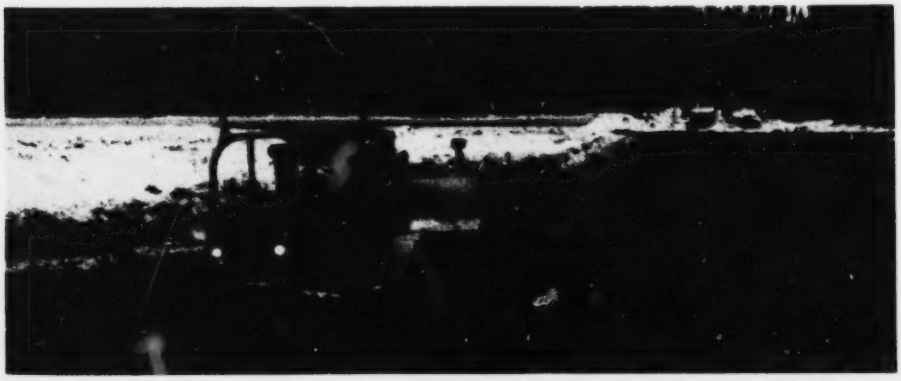
Work undertaken for the New Careers Corporation of the Department of Parks and Renewable Resources consisted of driving 16 steel pipe piles at the Elbow Harbour boat dock, driving 135 timber piles and placing concrete for 21 cast-in-place concrete piles for a boat marina at Rowan's Ravine.

Winter Roads

40.3 km of winter road were constructed to Wollaston Post over Wollaston Lake from Hidden Bay on Highway No. 905. Further testing was done for a route across Old Wives Lake, southwest of Moose Jaw, in the event that Saskatchewan Minerals elect to haul sodium sulphate from Bishopric to Chaplin.

Training

Works Branch completed 134 person days of training in management, equipment repair and safety.



Works Branch crew grades on Highway No. 106; the Hansen Lake Road in Prince Albert District.

Swift Current District

Swift Current District staff are responsible for 4232 km of roadways.

The district staff are responsible for maintenance, construction and design of all highways within the district boundaries.

Design and Testing

The Design section is responsible for designing highway subgrades, safety improvement projects, illumination projects and miscellaneous projects for the special construction program. This section also operates the District Materials Laboratory.

The Design staff completed 28 km of subgrade design and 60 km of preliminary survey during the year. Soils Laboratory staff processed a total of 5,943 samples for gravel pit control, subgrade, pavement design, and construction contract administration. In addition, eight projects were commissioned to consulting engineers in 1985-86 and they completed 101 km preliminary survey and 100 km of subgrade design.

Construction

The Construction Engineering section is responsible for the supervision of construction projects, the materials location program and the supervision of cost-shared programs.

During the year, 71.5 km of subgrade were constructed and 151 km surfaced, of which 42 km were cold-mix bituminous surface course.

Some of the major projects completed were:

- the grading and paving of Highway No. 13 (Red Coat Trail) from the Claydon grid road to 17 km west;
- paving on Highway No. 21 from Cypress Park to Maple Creek and constructing concrete curbs and paving from 5th Avenue to the CPR tracks in Maple Creek; and
- re-surfacing Highway No. 4 from the Saskatchewan Landing Bridge to 14 km south.

The materials location crew conducted material searches which resulted in the location of 860 000 m^3 of sand and gravel.

Maintenance

Maintenance activities were again started early in the season because of the very dry conditions. Heavy rains in August and September slowed operations but the late arrival of winter weather allowed us to complete summer maintenance operations.

Maintenance forces used 295 670 t of processed aggregate, 85 000 t of bituminous mix and 19 550 000 L of liquid asphalt to maintain public and provincial highways under district jurisdiction.

District crews also accomplished the following:

- the repairing of 15 km of failed subgrade
- seal coatings on
  - 260 km of oil treated survace
  - 96 km of paved survace
  - 75 km of granular base surface

The district operates 25 section crews and six special crews, located in 21 communities within the district to carry out the maintenance program on the district highway system consisting of the following:

- 121 km gravel surface
- 2594 km oil treated surface
- 1293 km paved surface
- 166 km paved 4-lane surface
- 58 km tourist facility roadways

Regina District

The Regina District is responsible for 4944 km of provincial and public highways, including 103.11 km of tourist facility access roads.

The district highway system was increased approximately 90 km with the takeover of Highway No. 361 from the Manitoba Border to east of Lampman.

In addition to regular maintenance activities, major highway improvements including subgrade, surfacing, rehabilitation and seal coat construction work.

Design and Testing

During the year 70.03 km of field survey, 60.61 km of subgrade design and 131.48 km of pavement design were completed.

185 400 m^3 of sand and gravel were tested and located. Construction and maintenance activities used 711 246 m^3 of sand and gravel. Public organizations and private individuals obtained 218 370 m^3 of gravel under 129 separate permits.

Construction

Construction crews graded 43.9 km and surfaced 115.2 km. Another 39.8 km of paved highway were rehabilitated.

The district administered 35 major grading, paving, seal coat and aggregate crushing contracts. Grading and paving work was completed on Highway No. 11 southeast of Chamberlain and Highway No. 18 west of Torquay to the Bromhead Access Road. Paving work on Highway No. 9 was completed between Alameda and the United States border.

Inclement weather in August and September delayed construction progress on grading and/or paving projects such as Highway No. 48 through Kipling, Highway No. 48 east of Montmartre, Highway No. 334 west of Corinne, Highway No. 13 west of Weyburn, Highway No. 363 west of Moose Jaw and Highway No. 33 between Fillmore and Creelman. These projects will be completed in 1986.

District constructed 20 thin pavement overlay type test sections on Highway No. 6 north of Southey to evaluate the economics and performance of various construction materials, equipment and methods and procedures. The materials used included a latex modified bituminous hot-mix, boni-fibre modified bituminous hot-mix, latex modified slurry seal and a popcorn bituminous hot-mix. Some of the test sections were constructed with a heater/scarifier machine. The purpose of this research project is to develop an economic thin overlay method to replace the conventional seal coat method to resurface high traffic volume pavements.

Maintenance

Maintenance crews produced 110 000 t and applied 64 000 t of asphalt patching mix, applied 16 million L of liquid asphalt, spread 254 000 t of aggregate and applied 18 000 t of sand and 12 000 t of salt for winter ice and snow control. $190,000 was expended to spray highway right-of-ways to control the severe grasshopper infestation in 1985. Contractors applied 320 km of seal coat on oil treatment and paved highways.

Highway maintenance is provided with 34 section crews and six special crews located in 32 communities throughout the district.

Equipment repair depots located at Weyburn and Moose Jaw provided repair and service for 454 pieces of maintenance equipment.

Shareable Programs

The cities of Regina, Moose Jaw, Weyburn and Estevan received a total of $1,607,860 under the Urban Assistance Program for street and traffic safety improvements.

The City of Regina completed major construction work on Arcola Avenue and started to construct the interchange on the Ring Road at Pasqua Street.

Twelve urban centres under a population of 5,000 received a total of $331,400 for street and traffic safety improvements. Six communities received a total of $66,438 to develop, operate and maintain community airports.

The Urban Assistance Program provided for maintenance of oil treated urban streets in 81 eligible communities. The department provided $19,000 to the 42 communities that participated.

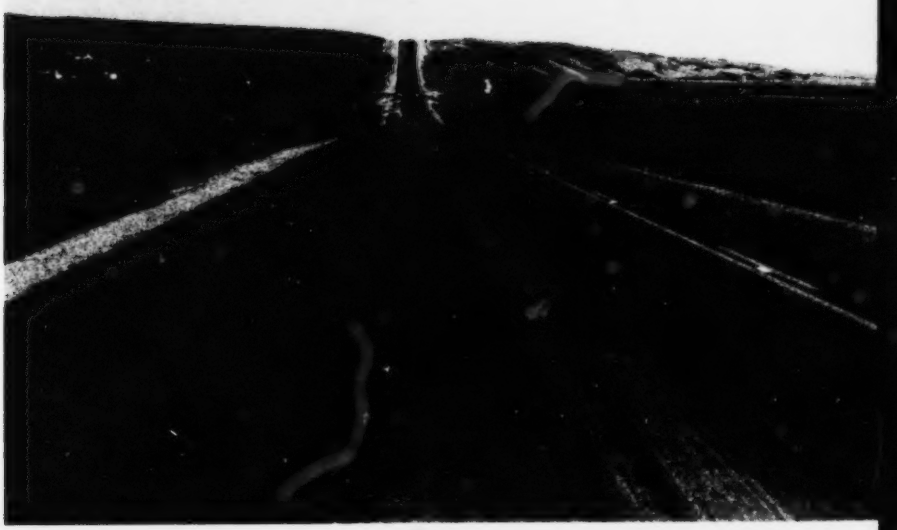
Other Activities

Highway safety and miscellaneous special construction improvements included improving subgrades with lime, improving roadway drainage, constructing loadometer sites, improving road information signs and providing safer highway accesses.

In addition, 25 intersections were delineated with one or two street lights. Guardrail was installed at five sites which included three bridges.

District staff successfully negotiated 322 property purchase and miscellaneous damage agreements.

District Winter Road Information Service (Hotline) received 23,775 telephone inquiries between April 1, 1985 and March 31, 1986. The hotline was operated at Regina, Weyburn and Moose Jaw.



After three years of construction, Highway No. 9 reconstruction from the U.S. Border north to Highway No. 18 was completed. Photo was taken at the Souris River Valley.

Yorkton District

The Yorkton District is located along the east central part of the province, and is responsible for 3077 km of public and provincial highways, 60 km of tourist facilities and the operation and maintenance of the Provincial Airport at Hudson Bay.

Design

The Design section carried out 44 km of preliminary survey and 23 m of highway design during the fiscal year 1985-86.

As well, current commissions to consulting engineering firms involved completion of 3.54 km of highway design.

Construction

District Construction section staff supervised eight grading and three surfacing projects during the year. Ninety-two km of subgrade were constructed and 29 km were surfaced.

Some of the major projects completed or nearly completed during the year were:

- the grading of Highway No. 38 from Kuroki to the junction of Highway No. 49;
- the grading of Highway No. 8 from north of the Qu'Appelle Valley to the north junction of Highway No. 22;
- the grading of Highway No. 38 from Greenwater Provincial Park north;
- the grading of Highway No. 15 from Leross to west of Lestock;
- the grading of Highway No. 9 from the Manitoba Border to 12 km west; and
- the surfacing of Highway No. 3 from Hudson Bay to Erwood.

Resurfacing of an 8 km section of the Yellowhead Highway were completed between Orcadia and Springside. Also, the truck climbing lanes in the Qu'Appelle Valley on Highway No. 9 were resurfaced.

Other projects administered by District Construction staff involved several safety and drainage improvements on the highway system and the supervision of seven gravel crushing contracts.

Maintenance

Oil treated surfaces generally performed well and required only routine maintenance. Many of our pavements did not fair as well. Our 1985-86 expenditures for deep patch were $1.128 million as compared to $341,000 in 1984-85.

Maintenance section produced 49 300 t of bituminous mix and applied a seal coat on 330 km of highway surface. An average pavement performance of six was attained on oil treatment surfaces.

The highway system maintained by district forces includes:

- 247 km gravel surface
- 1081 km oil treated surface
- 1749 km paved surface
- 60 km roadway within campground and provincial parks
- 17 picnic and campground sites
- 1 provincial airport

To accomplish the maintenance work, the district has 20 section crews, two gravel sectionmen and three special crews in 18 communities throughout the district.

Materials

Materials Section staff completed 130 km of grade hole drilling, 45 km of stratigraphy drilling, 51 km of borrow pit testing and 47 km of select borrow testing for subgrade and surfacing design purposes.

Gravel Location Crews identified eight new sand and gravel deposits and re-tested seven existing department-owned pits. The searches verified an additional 1 466 400 m^3 of granular material.

Staff issued 64 permits to public institutions and private individuals who removed 102 728 m^3 of sand and gravel from department-owned pits this year. District construction and maintenance activities used an additional 219 453 m^3.

Staff completed four pavement designs totalling 60 km of highway, three major geotechnical project reports and provided guidance on the preparation of geotechnical reports, grading soils plans and field testing done by private consulting firms.

Shareable Programs

The City of Yorkton received a total of $401,694 under the Urban Assistance Program.

The city expended funds on the grading and paving of Darlington Street, a comprehensive traffic study and traffic signals on Highway No. 10 and Mayhew Avenue.

Eight urban centres under 5,000 population received a total of $59,584 for curbs, pavement and oil treatment of access and main streets. Seven communities received $23,520 to maintain community airports.

Other Activities

The Special Safety Improvement Program included the installation of nine safety ramps, guardrail installations at two bridge locations, site distance improvements on Highway No. 9 north of Hudson Bay for a combined total cost of $154,575.

The Delineation Lighting Program consisted of an initial installation of seven lights at different locations, with 22 additional locations added to the program in late fall, for a total actual expenditure of $118,251.

An aerial view of the flooding along Highway No. 9 between junction No. 55 and the Manitoba boundary in May of 1985. The grading work that was underway on a section from the Manitoba boundary to 12 kilometres west was disrupted by the flooding.

Saskatoon District

The Saskatoon District, which is the heart of the province abutting all five remaining highway districts, is responsible for 2520 km of the provincial highway system.

Highlights that were recorded this year include:

- the official opening of the Borden Bridge on September 29, 1985, with 9,400 people in attendance;
- the completion of the grading and paving on the first section of Highway No. 41 Wakaw to Melfort; and
- the Highway Traffic Board, Transport Compliance Branch, moved into adjoining office space in the Circle 8 Building on March 12, 1985.

Construction Section

Seventeen contracts were supervised by this section including 19 km of subgrade, seven intersection treatments, 5.1 km of recycled hot mix, 41 km of Pavement 'B', 5 km of Pavement 'A', 25.7 km of overlay on pavements and 19.8 km of pavement rehabilitation.

$1.5 million in assistance was provided to the City of Saskatoon, two communities were assisted through the Custom Work Program and one was provided Urban Assistance.

Design Section

This section carried out 262.5 km of highway location of second set of lanes for future four-laning, 82 km centreline location, 48.5 km of field survey, and 35.3 km of subgrade design.

Special studies completed during the year included the Langham Access Study, the Borden Four-laning Location and Access Study, the cable guardrail warrants in the Saskatoon District and a portion of the writing of the Technician Survey Manual. Additional projects designed were intersection treatments, delineation lighting at intersections and a loadmeter scale site.

Delineation lighting was installed at eight major intersections and community accesses.

Approximately 50 subdivision proposal requests were reviewed and recommendations were made. Approximately 200 permit request from Sask Tel, Saskatchewan Water Corporation, Sask Power and Natural Gas, P.F.R.A. and Ducks Unlimited were reviewed and recommendations were made.

Maintenance Section

The Maintenance section accomplished the following improvements:

deep patching	9090	m^2
thermo patching	44	km
re-oiling	28	km
seal coat on paved highways	44.2	km
seal coat on oiled highways	191	km
pavement shimming	15.9	km
stockpiling of bituminous mix	27 818	t
seeding right-of-way	109	ha
screened aggregate for ice control	12 125	t
cal treat sand for ice control	1738	t

Winter maintenance usage:

salt	8535	t
sand	12 125	t
cal treat sand	1738	t
CaC1	90	t

Maintenance costs were $7,881,900 of which $1,481,000 was for winter maintenance and $1,834,800 was for special maintenance projects. The Saskatoon Road Information Service (Hotline) handled 23,302 telephone calls throughout the winter.

Materials Section

Materials engineering staff completed or supervised the preparation of ten surfacing designs and nine geotechnical pre-engineering reports in Saskatoon and Swift Current Districts. Two consultant commissions were issued.

Fifteen projects received specialized materials engineering input in the design or construction phase. A further six studies were initiated or continued, including a re-analysis of the Muddy Lake site stability, a trial tensar grid installation, a tall oil pitch asphalt rejuvenator test section, plus research into lime modification. Monitoring of the seal coat test sections in Saskatoon and Swift Current Districts continued.

Laboratory staff performed approximately 11,300 individual tests on various material samples taken during field exploration or construction activities. Five Marshall mix designs were completed.

The Gravel Location Section tested ten new sand and gravel deposits and re-tested 16 others. The field testing verified 605 000 m^3 of gravel and 200 000 m^3 of sand at a cost of $0.17 m^3.

Prince Albert District

The Prince Albert District is responsible for 5136 km of public and provincial highways. The district is also responsible for the maintenance and operation of the Uranium City and La Ronge Airports and for the maintenance of nine gravel airstrips.

Design and Testing

Design staff completed 33 km of preliminary surveys and 20 km of final subgrade design during the year. Four detailed location studies were also completed.

Gravel location crews located seven new gravel sources containing approximately 270 000 m^3 and two new sand sources containing 225 000 m^3. These new sources will result in considerable savings in future haul costs. Twelve existing gravel sources were re-assessed, after use, to determine remaining quantities. These crews also provided soil samples for testing on 11 construction projects.

District Lab staff provided 6,930 test results on 3,800 individual samples. The test results are used for product quality control purposes and to provide information in contract tender documents.

Construction

During the year 85 km of subgrade were constructed along with 77 km of pavement.

Construction activity during the winter months was very high with two contracts on Highway No. 106 in the vicinity of Big Sandy Lake, one contract on Highway No. 106 in the vicinity of White Gull Creek, one contract at the junction of Highways No. 2 and No. 165, and several winter haul contracts.

Other grading projects completed during the construction season included Highway No. 378 in the vicinity of Rabbit Lake, Highway No. 368 in the vicinity of Pathlow, Highway No. 335 in the vicinity of Armley and the access road to the Red Earth Reserve from Highway No. 55.

Resurfacing projects completed during the year included Highway No. 11 south of Prince Albert, sections of Highway No. 35 south of Tisdale and sections of Highway No. 23 in the vicinity of Arborfield. Resurfacing Highway No. 3 west of Prairie River was started using asphalt materials salvaged on previous projects.

Other projects administered by construction staff included several spot improvements and the supervision of a number of special maintenance mixing, sealing and crushing projects.

Maintenance

The highway system maintained includes 2550 km of gravel, 1098 km of oil treatment and 1488 km of pavement.

A variety of improvements were carried out as follows:

deep Patching	576 000 m^2
seal Coats	169 km
clay Capping	68 km
dust Treatment	361 km

To accomplish this work the district has 36 section crews and nine special crews located in 26 communities throughout the district.

The spring run-off was extremely high in 1985 resulting in several instances where highways were temporarily closed due to flooding conditions. Particular problems were experienced with pavement surfaces due to the wet spring conditions. During the summer a considerable amount of work was done to restore these surfaces.

Winter snowfall was near normal, however icing conditions were worse than normal due to the mild weather. During the winter 11 000 t of salt were applied to driving surfaces to eliminate hazardous icing conditions.

District shop staff provided excellent service to repair and overhaul a fleet of approximately 800 units including equipment assigned to Works Branch.

Other Activities

In addition to the normal administration duties, District Administration staff processed 76 over-dimensional permits, 79 material requisitions, 165 gravel and sale of material invoices, 1,000 construction and maintenance material invoices and 427 custom work and barge billings. Excellent results were again achieved in the area of processing accounts for payment in a timely manner.

A total of 13 communities participated in assistance programs that included Urban Assistance, Airport Assistance, and Urban Traffic Safety.

Delineation lights were installed at three different locations.

Winter roads were operated from Cumberland House to Sturgeon Landing and from Highway No. 905 to Wollaston Lake.

The Wollaston Lake barge operated from June 17, 1985 to October 4, 1985 making 157 crossings to the community of Wollaston Lake.

North Battleford District

The North Battleford District is located in the north-west corner of the province and is responsible for 3979 km of public and provincial highways. The district is also responsible for the operation and maintenance of the Meadow Lake and Buffalo Narrows Airports and for the maintenance of six gravel airstrips.

Design

Design section staff completed and updated the design of 32 km of grading. Eight tender packages were completed.

Materials

Surfacing designs were completed on six projects and updated or revised on three projects. Check tests for quality control were carried out on the active construction projects.

Other work included:

- testing on six existing gravel pits and 25 gravel pits were re-surveyed and quantities and plans updated;
- location of approximately 350 000 m^3 of gravel;
- 20 pit evaluations and recommendations for five contracts;
- laboratory testing of all gravel and soils samples;
- side slope stability analysis; and
- geotechnical study at Mission Hill on Highway No. 165.

Construction

During the year 51 km of subgrade were constructed and 61 km surfaced including 6 km of hot mix pavement.

The district's construction program was administered through 17 contracts.

Surfacing continued on Highway No. 155 north of Buffalo Narrows. Oil treatment surfacing was extended to within three km of La Loche.

Major surfacing continued on Highway No. 14 with the section from Evesham west to the Alberta border being completed. Surfacing was completed on Highway No. 21 from 16.3 km to 38.6 km north of Maidstone.

Surfacing commenced on Highway No. 17 north of the junction with Highway No. 14 and on Highway No. 55 west of the junction with Highway No. 4.

Surfacing was carried out on a 10 km portion of Highway No. 26 south of the junction with Highway No. 3.

A 2.7 km section of Highway No. 16 west of Battleford was resurfaced with hot mix pavement as was 2.7 km of Highway No. 16 in the vicinity of the new weigh scale site west of Marshall.

Subgrade construction on Highway No. 26 was completed from the junction with Highway No. 3 to 17 km south. Subgrade construction was also completed on 25 km of Highway No. 29 from Wilkie north. The existing surfacing structure on Highway No. 29 was salvaged prior to the subgrade construction taking place. Subgrade construction on the Paradise Hill access was also completed in 1985. Subgrade construction on Highway No. 21 north of the junction with Highway No. 303 commenced during the fall of 1985.

Construction of a new weigh scale site along Highway No. 16 in the vicinity of Marshall was completed along with the associated surfacing.

Maintenance

The highway system maintained by district forces includes:

- 1766 km of gravel surface
- 1084 km of oil treated surface
- 1109 km of paved two-lane surface
- 20 km of paved four-lane surface
- 100 km of roadways in campgrounds and provincial parks.

Maintenance is provided by 32 section crews and eight special crews.

District shop staff provide service for a fleet of approximately 350 power units and numerous pieces of sundry equipment.

Maintenance forces used 8 768 700 L of liquid asphalt, 263 500 t of processed aggregate and 45 100 t of bituminous mix.

The district seal crew completed a total of 366 km of seal coat. This was made up of 172 km of seal on oil treatment, 86 km of seal on construction and 108 km of rehabilitation seal.

Sixty-one km of subgrade were stabilized with clay or calcium chloride.

Dust treatment with calcium chloride and calcium lignosulphonate was completed on 170 km of northern roads.

Three hundred and thirty tonnes of lime were used to improve the subgrade on about 35,000 m^2 of various oil treatments and pavements.

The district tendered the crushing and stockpiling of 150 900 t of traffic gravel and 129 600 t of bituminous repair aggregate. In addition, 40 200 t of bituminous mix were tendered.

For winter maintenance, district forces used 8000 t of salt, 9000 t of sand and 44 800 L of calcium chloride. This effort was required to maintain good winter driving conditions in a relatively mild year in which the snowfall equalled the long term average and icy roads persisted due to rain and quickly changing temperatures.

Highlights this year included the realignment of district boundaries in the Pinehouse area. Prince Albert District took over the maintenance of 411 km of northern gravelled roads from the North Battleford District in November, 1985. In addition, two grid road takeovers were added to the provincial highway system within the North Battleford District. On July 15 the district took over the maintenance of 20.08 km of gravel road on Control Section 21-19 from Pierceland to the Meadow Lake Provincial Park boundary. The district also took over the maintenance of 11.26 km of oil treated road on Control Section 303-02 from Lloydminster to the east on October 1, 1985.

Other Activities

Safety improvements included the flattening of approach slopes on Highway No. 29 from Battleford to 22 km south. Guardrail was installed at three bridge locations.

Under the Recreational Area Improvements a seal coat was placed on various roadways at Stabler Point on Loon Lake. Various roadways and pullouts at the Battlefords Provincial Park and Kramer Campground were oil treated.

A total of seven communities participated in Urban Assistance, Airport Assistance and Urban Traffic Safety.

Delineation lights were installed at five highway intersections.

Summary of Kilometres of Work Accomplished 1985-86

		Grading		Surfacing					
Control Section	Location	Comp.	U.C.	Pvt. A	Pvt. B	Pvt. C	Pvt. D	Rehab.	U.C.
1-08	Balgonie — Regina							2.26	
1-08-6R	N.E. off ramp at Ring Road							0.31	
1-08-6L	Auxiliary roads at White City					0.83			
1-08-8L	Service roads at White City					2.65			
1-09	Victoria Ave. (Regina) — Jct. No. 6							6.55	
1-09-6R	Off ramps at Wascana Parkway							1.50	
1-09-70	Victoria Ave. in Regina							1.22	
2-06-40	Jct. 2 (S. of Moose Jaw) — Jct. 363	1.56		3.12					
2-09	Jct. 11 — N. of Penzance							1.70	
3-02	Erwood — W. Jct. 9 (Hudson Bay)				13.39				
3-04	Prairie River — S. Jct. 23							11.40	6.90
3-17-41	Paradise Hill access	0.75							
4-05	Jct. No. 1 (Swift Current) — Sask. Landing							6.60	
4-05-70	E. Jct. 4 & 1 — Jct. 4 N. of Swift Current							0.24	
6-08	Jct. 22 (Southey) — N. Jct. 15 (Raymore)							5.70	
6-10	S. Jct. 16 (Dafoe) — S. Jct. 5 (Watson)							5.10	
7-03	Jct. 45 (Delisle) — Harris							6.50	

Control Section	Location	Grading		Surfacing					
		Comp.	U.C.	Pvt. A	Pvt. B	Pvt. C	Pvt. D	Rehab.	U.C.
7-06-08	Service roads at Kindersley	1.93		1.67					
7-07	Jct. 21 (Kindersley) – Jct. 307								12.98
7-08	Jct. 307 – Alberta Border								9.00
8-06	Qu'Appelle River – E. Jct. 16 (Langenburg)	10.01	7.59						
9-01	U.S. Border – W. Jct. 18			26.78					
9-02	E. Jct. 18 – W. Jct. 13 (Carlyle)							1.78	
9-05	Jct. 1 (Whitewood) – Qu'Appelle River							4.30	
9-06	Qu'Appelle River – W. Jct. 22							3.66	
9-12	W. Jct. 49 – Usherville	14.80			6.00				
9-12-8R	Service road at Jct. 49	0.13			0.13				
9-15	E. Jct. 3 (Hudson Bay) – Manitoba Border	11.94							
11-01-70	Ring Road from Jct. 1 to Jct. 6 (Regina)							1.22	
11-03	Jct. 354 (Bethune) – E. Jct. 2	6.48		6.48					
11-03-8L	Service road at Findlater	0.32				0.32			
11-04	E. Jct. 2 – Aylesbury	10.13		10.13					
11-10-8R	Service Road N. of Saskatoon (61 St. - 71 St.)	1.64		1.64					
11-11	Jct. 305 (Warman) – Jct. 312 (Rosthern)	0.78		0.78				1.02	
11-13	Jct. 212 (Duck Lake) – Jct. 2							9.00	
12-04	Leask Grid – Jct. 3 (Shell Lake)	5.90	13.72						
13-06	Jct. 35 (Weyburn) – Jct. 28				0.70			8.26	
13-12	E. Jct. 58 (Lafleche) – E. Jct. 19				11.99				
13-13	E. Jct. 19 – Jct. 4 (Cadillac)				10.50				
13-16	Eastend – E. Jct. 21	16.91				16.91			
14-14	Perdue – W. Jct. 4 (Biggar)							15.20	
14-19	29 km W. of Unity – Alberta Border			10.10					
15-06	Jct. 35 (Leross) – S. Jct. 6	14.32							
16-13	Jct. 10 (Yorkton) – Jct. 47 (Springside)							7.00	
16-20	Jct. 2 – S. Jct. 11 (S.E. of Saskatoon)	0.18		0.26				0.59	
16-23	N. Jct. 11 – Borden Bridge			3.08					
16-24	Borden Bridge – Jct. 340 (Radisson)			0.60				11.08	
16-27	Jct. 4 (Battleford) – Bresaylor							2.69	
16-30	Marshall – Jct. 17 (Lloydminster)	0.76		0.76					
16-30-31	Scale site N.W. of Marshall			1.32					
17-03	Jct. 14 – W. Jct. Alberta 14			3.50					2.40
18-04	Jct. 47 (Estevan) – Jct. 350 (Torquay)							2.00	
18-05	Jct. 350 (Torquay) – Jct. 35 (Oungre)	12.09				12.09			
21-03	E. Jct. 13 – Jct. 221 (Cypress Hills)				0.24				
21-04	Jct. 221 – Maple Creek	1.03		1.03	26.52				
21-09-8R	Service road at Kindersley	1.58		1.58					
21-12	E. Jct. 51 (Kerrobert) – Jct. 14 (Unity)				24.57				
21-15	Jct. 16 (Maidstone) – E. Jct. 3		5.69	21.86					
23-04	N. Jct. 3 – Jct. 55							8.40	
26-03	S. Jct. 3 (Turtleford) – N. Jct 3	14.29			10.13				
29-01	Jct. 14 (Wilkie) – 24 km. N.	21.79		0.75					
29-01-1A	Point of Interest N. of Wilkie	0.20							
29-02	24 km. N. of Wilkie – Jct 40 (Battleford)	3.55							
30-01	Riverside Regional Park – Jct. 44 (Eston)			1.26					
31-01-41	Denzil access	0.13							
31-04	Salvador – Jct. 14	3.94			3.94				
31-04-8L	Service road in Macklin	0.27			0.27				
33-01	Jct. 47 (Stoughton) – Fillmore							11.83	
35-04	Jct. 13 (Weyburn) – Jct. 33 (Francis)				15.56				
35-14	Jct. 349 – Jct. 3 (Tisdale)							7.20	
36-02	N. Jct. 18 – W. Jct. 13			0.59					
38-02	Perigord – Jct. 23 (Chelan)	16.22							
38-05	Jct. 5 – Jct. 49	12.82	18.62						

Control Section	Location		Grading		Surfacing					
			Comp.	U.C.	Pvt. A	Pvt. B	Pvt. C	Pvt. D	Rehab.	U.C.
41-02	Jct. 20 — Jct. 2 (Wakaw)		5.82	2.80		16.52				
41-03	Jct. 2 — Jct. 27 (Aberdeen)								8.20	
43-03	N. Jct. 19 — Jct. 4		19.60				19.60			
44-09	Mantario — Jct. 7 (Alsask)		2.40				2.40			
45-02-41	Coteau Beach access							5.44		
47-09	Jct. 16 (Springside) — Jct. 5 (Buchanan)		1.08							
48-02	Jct. 8 (Fairlight) — S. Jct. 9								5.33	
48-03	N. Jct. 9 — Jct. 47		1.32			3.59				
48-03-40	Kennedy access		0.20					0.38		
48-04	Jct. 47 — Jct. 35					21.30				
55-03-42	Red Earth access		4.50							
55-04	E. of Smokey Burn — Jct. 123			5.23						
55-10-6R	Curve at Jct. 240		0.12					0.12		
55-15	E. Jct. 4 (Meadow Lake) — S. Jct. 26					8.84				
56-02	Qu'Appelle River — Jct. 35 (Ft. Qu'Appelle)			0.60						
58-03	W. Jct. 43 (Gravelbourg) — Jct. 363								0.64	
106-01	Jct. 55 (Smeaton) — Jct. 120		2.00							
106-02	Jct. 120 — Jct. 165		13.36	2.00						
106-03	Jct. 165 — Jct. 911		29.31							
106-04	Jct. 911 — Jct. 135							6.20		
155-03	Buffalo Narrows Bridge — Laloche							17.77		
165-01	Jct. 106 — N. Jct. 2		0.78							
167-02	Denare Beach — Flin Flon								0.65	
204-01-10	Battlefords Provincial Park							1.57		
210-02	Jct. 56 — Jct. 10								1.70	
221-01-10	Cypress Hills Provincial Park		1.62			1.12			1.06	
307-02	Smiley — Jct. 21			9.77						
317-02	Jct. 51 — Jct. 31 (Primate)		19.26				19.26			
335-02	Jct. 35 — Jct. 6 (Gronlid)		13.03				13.03			
363-01	Jct. 2 (Moose Jaw) — Courval		18.85		1.07		10.68			
368-02	St. Brieux — Jct. 3							11.05		
368-02-40	Pathlow access							0.41		
378-02	Rabbit Lake — Jct. 3 (Spiritwood)		23.03				16.83			
969-02	Montreal Lake — W. Jct. 165		0.18							
	Totals	District 1 — Swift Current	68.67	9.77	5.54	54.58	58.17	5.44	8.54	21.98
		District 2 — Regina	50.95	0.60	48.17	41.15	26.57	0.38	51.36	
		District 3 — Yorkton	81.32	26.21		19.52			14.96	
		District 4 — Saskatoon	8.42	2.80	6.36	41.09			47.69	
		District 5 — Prince Albert	92.21	20.95			29.86	17.78	36.65	6.90
		District 6 — North Battleford	41.34	5.69	38.29	18.97		19.34	2.69	2.40
	Provincial Total		342.91	66.02	98.36	175.31	114.60	42.94	161.89	31.28

Construction Key

Control Section — A permanent unit of the highway system which becomes the basic reporting unit for construction and maintenance costs, service life characteristics, and various other data.

Grading — Completed (Comp.) — Grading completed within the year being reported.

Grading — Under Construction (U.C.) — The under construction portion of the project which is being carried over to be done in the next constructing season.

Rehabilitation — Work such as pavement resurfacing, carried out to restore a roadway to the standard to which it was constructed. This is warranted when maintenance operations are no longer adequate or appropriate. Differs from upgrading in that the design standard is not improved.

Pavement "A", "B", "C" and "D" — Represents different types of surfacing structures.

Oil — Oil treatment. Cold asphalt mix surface treatment of nominal thickness.

Surfacing — Under Construction — The paving portion of the project which is being carried over to be done in the next construction season.

Engineering Division

The Engineering Division is responsible for the development of standards for the design, construction and maintenance of provincial highways. The division has continued to emphasize the thrust for the development of new and innovative procedures which will enhance both the management capabilities of the department and program delivery.

Laboratory evaluations were carried out on the utilization of a byproduct of the pulp and paper industry for a rejuvenating agent to be added to recycled asphalt concrete pavements. This was followed by the construction of an evaluation section of pavement.

The department acquired a unit capable of measuring and recording both the pavement roughness and wheelpath rutting while travelling at high speeds. This will significantly advance capabilities in managing the pavement network.

Enhancements were made in a computer based maintenance management system which provides current information to district managers. All area offices now have remote terminals for entering and retrieving information they require in managing their maintenance activities.

A third, department-designed and manufactured, high speed pavement marking truck was commissioned. This has greatly increased capability in providing pavement centreline and shoulderlines. Experimentation was carried out to assess the feasibility of utilizing epoxies as a longer lasting pavement marking. Research also extended into the possible safety benefits of increased edgeline widths.

An expanding and aging pavement network necessitates the development of a more sophisticated pavement management system to evaluate various rehabilitation strategies and their implications over time. The department has commissioned a consultant to carry out the design of this system.

Continued enhancements are being carried out on the recently installed equipment management system with an emphasis on input from the system users. Significant savings are projected with the improved management capabilities of the department fleet.

Results of research into the hydraulic capacity of culverts has been incorporated into the department's design manuals. Hydraulic calculations can now take into account recent advancements in manufacturing techniques and in metric changes within the industry.

Grant Hodgins
Minister, Highways and Transportation

J. R. Sutherland
Deputy Minister

M. F. Clark
Engineering Division

J. Syrnyk
Road Design Branch

B. Martin
Maintenance Branch

J. Palaschuk
Equipment Branch

A. Widger
Geotechnical Branch

G. Heiman
Surfacing Branch

H. Eley
Materials Testing Branch

Research was initiated into the use of lime in enhancing the properties of soils for embankment construction. The department continued joint research with University of Saskatchewan in acquiring fundamental information to be used in highway construction along the North Saskatchewan River Valley.

M. F. Clark
Associate Deputy Minister (Engineering)

Road Design Branch

Road Design Branch is responsible for eight major areas:

- developing and updating design standards;
- reviewing geometric and drainage designs;
- general location reports and interchange design;
- reviewing highway lighting design;
- preparations of and updating manuals pertaining to design activities;
- providing advice and guidance on all matters pertaining to geometric, culvert and highway lighting designs;
- developing standards and policy pertaining to roadside development and to direct roadside development permit operations; and
- operating the department's air photo library.

Manuals

The development of new standards and the metrication of minor standards continued throughout the year.

Considerable progress was made in the development of a Metric Hydrualic Manual. This manual should be available by mid 1986.

In addition, considerable progress was made in the development of the revised Roadside Development Manual. This manual will provide guidelines for the control of roadside development adjacent to provincial highways.

Safety

Safety remains a most important aspect of geometric design. Accident data is a significant consideration in the development of standards.

Air Photo Library

There were two contracts for airphoto work in 1985-86. Library staff acquired 3000 line km of photography and prepared 653 mosaic sheets.

A program was initiated this year to obtain new air photographs on our provincial highways. Many of our existing air photographs are 15 years or older. Up to date photographs are necessary for highway planning, design and construction.

Development Permits

The review of our existing development standards was completed this year. New guidelines for controlling development adjacent to provincial highways were developed. These will be incorporated in the revised Roadside Development Manual.

Approximately 350 subdivisions were reviewed and 330 permits were issued.

Equipment Branch

Equipment Branch provides administrative, consultative and technical guidance on all issues related to the department's equipment fleet.

Major areas of responsibility are:

- developing the annual equipment budget;
- purchasing all equipment and related items;
- managing and operating the department's Equipment Management Information System (EMIS);
- setting rental rates for department owned equipment and for equipment used on Saskatchewan Highways and Transportation contracts and projects;
- developing policies and procedures related to equipment operation and maintenance;
- administering the department's mobile/radio telephone communications system;
- providing technical guidance and expertise on equipment repair and operation; and
- administering the department's fleet of Central Vehicle Agency vehicles.

Equipment Fleet

The department's current fleet consists of 2,703 units, including trucks, tractors, graders, mowers, compactors, sweeper brooms, trailers, camp equipment and heavy construction equipment.

The majority of the equipment is used to maintain the highway system.

Fleet Operation

The cost of operating the department's equipment for the year was $21.5 million. Repairs cost $7.1 million, fuel and other operating costs $6.1 million, ownership costs were $3 million and $5.3 million was spent on licences and administration.

Equipment Purchases

In 1985-86, $2.1 million was expended on new equipment acquisitions. The current capital cost of Saskatchewan Highways and Transportation equipment fleet is $63 million. Fifty-eight requisitions were raised to purchase major equipment, support equipment, shop equipment and tools.

Rental Rates

Equipment Branch sets rental rates for equipment that is used on an hourly basis on highway construction projects. These rates are used as a guideline by the construction and roadbuilding industry. The rates were distributed to 300 contractors, equipment dealers, trucking firms, towns, cities and other government departments and agencies.

Rental rates for department owned equipment were calculated on a provincial basis. These rates are set to recover the costs of owning, operating, repairing and administering the department's equipment fleet.

C.V.A. Fleet

Central Vehicle Agency supplies cars and light duty trucks. The department leased 162 units in 1985-86 on a non-maintenance lease. Under this arrangement, the department is responsible for maintenance and operating costs and repays C.V.A for purchasing the vehicles. Two hundred and sixty units were under a full maintenance lease. The department pays for the units based on the number of kilometres driven. C.V.A. bears all costs for operating and maintenance.

Mobile Radio/Phone System

The department uses 820 mobile and portable radio telephones for communication between vehicles and between vehicles and office headquarters.

During the year repeaters were installed at Denzil and Denare Beach to improve communication coverage.

Equipment Management Information System

The system has been current since December 1984 and is providing management information on a regular basis.

A users committee was formed in September 1985 to guide the development of the system. This committee has initiated the production of improved and new management reports and is planning to streamline field input reporting procedures through an interface with another system.

Surfacing Branch

The mission of the Surfacing Branch is to develop and review standards and policies in pavement design, construction and paving materials for construction and maintenance, and to provide for central gravel resource management.

Pavement Management

The 1986-87 rehabilitation program of $20.3 million was developed for 730 km of the highway system. The program consisted of $14.8 million for overlays, $2.4 million for spot improvements and $3.1 million for seal coats.

The rehabilitation work is increasing as many of the highway pavements have reached their design life. In times of limited resources new materials and techniques have to be developed. The branch designed a thin pavement test section, that was constructed under district supervision and is being monitored by the Technical Research Branch.

The thin overlay section will evaluate the performance of overlays 15 mm to 30 mm thick, materials and techniques such as "glass grid", latex additives, "boni fiber", slurry seals, and heater scarification. The most cost effective methods and materials will play an important part in future rehabilitation programs.

To improve the department's pavement management, consultants were invited for proposals to design and develop a Pavement Management Information System. A consultant was chosen and will be starting work in the 1986-87 fiscal year.

Standards and Policy

The branch evaluated rehabilitation and design standards for pavements which are alternative strategies to those currently in use. This information was used by Capital Programming Branch staff to evaluate the effect of these strategies on the long range program.

The branch also evaluated our current mix design properties in terms of rutting on the highway system. Small changes to some design parameters will be made to ensure that our mix designs will have slightly higher resistance to rutting.

Maintenance Branch

The mission of Maintenance Branch is to develop and review policies, standards and procedures for cost effective maintenance of provincial transportation facilities; to provide expert engineering advice and information regarding maintenance practices and procedures; to provide pavement marking services for provincial highways and airports; and to adminster all vehicle weight and dimension legislation for provincial highways including control of overweight and overdimension vehicles.

Program Standards

During 1985-86 the department maintained 23 686 km of provincial highways and provincial roads. The system was composed of 8996 km of staged or full pavement, 1115 km of light pavement, 8699 km of oil treatment, 4360 km of gravel road, and 526 km of tourist facility roadways and sites. During the year this system was divided into 3416 km of arterial highways, 6300 km of collector highways, 9547 km of local highways and 4423 km of provincial roads.

The approved 1985-86 maintenance budget of $83.6 million represents an increase of 5% over the previous year. The department was able to meet or exceed its objectives for surface maintenance. The Riding Comfort Index on oil treatments ranged around 5.8 throughout the year as compared to the 5.4 objective.

The Maintenance Practice and Procedures Manual had 34 sections revised and 44 new sections added. The Maintenance Policy and Standards Manual had four new sections added and four sections revised. The branch carried out 8 special studies for use by executive management and district managers, including the development of new base standards and allotments for the maintenance program. This included increased effort in maintaining the paved highways so as to defer expensive resurfacing.

Enhancement of the Maintenance Management Information System was continued during the year to improve the quality of the management information. The branch also completed installation of remote terminals at area headquarters in Creighton and Buffalo Narrows for data entry and report retrieval.

Pavement Marking

The department striped 21 976 km of centreline and 17 477 km of shoulderline. This was 450 km above objective and was 733 km above the previous year.

During the year a third large high speed pavement marking machine was introduced. Experiments were carried out with an epoxy paint on several areas to test for a lost cost, high wear paint in high traffic volume areas. Work was also carried out with research and traffic safety staff to examine the value of wide edge lines.

Weights and Dimensions

The vehicle weights and dimension regulations were re-written to incorporate minor administrative changes and to make them easier to read. This revision also incorporated a major increase in the

primary weight highway system. This increase from 3177 km to 6969 km provided access at higher weights to urban centres over 2,000 population and most industrial sites.

During the year a total of 38,629 permits were issued for overweight and overdimension loads. This represented an increase of 3,476 or 9.9% over the previous year and is 24.9% above the average of the previous five years. The 24,842 permits issued by the Provincial Permit Office in Maintenance Branch is the highest number ever issued despite increasing use of blanket or multi-trip permits. The number of permits issued by the districts was 1,069 which indicates a continuing decline. The number of weight and dimension permits issued by the Central Permit Office grew to 12,718 compared to 12,604 in 1984-85, 8,041 in 1983-84 and 0 in 1982-83.

Policy changes were made in several areas to improve transportation productivity and still protect other highway users. The movement of overwidth oilfield tanks was allowed up to lengths of 25 m rather than 23 m where three tanks could be hauled rather than two tanks or two tanks rather than one tank. This slight increase in length is offset by a substantial decrease in the number of overwidth loads to move the same number of tanks. This policy also applies to grain bins, fertilizer bins or similar structures. The requirements for moving 5 m wide for mobile homes was modified to make the requirements more uniform with neighbouring provinces. These changes should reduce the cost of delivering these homes to the customers.

During the year the first ever vehicle weight and dimension regulations brochure was produced. This brochure attempted to explain the complex weight and dimension legislation in terms that could be readily understood by the public. The brochure is receiving widespread distribution to trucking companies, farmers, rural municipalities, licence issuers and the general public.

Geotechnical Branch

The major responsibilities of the branch are the development of geotechnical standards for subgrade construction, the completion of major site investigations for bridges and valley crossings, the provision of technical advice to other units in the department and the co-ordination of this department's environmental and heritage resource submissions.

Standards and Policies

Geotechnical Branch took part in approximately 20 field design reviews and provided formal comments or recommendations on approximately 30 projects. Work continued on studies related to geotechnical standards and policies with special emphasis placed on select sand stabilization. A lime research project was initiated with the University of Saskatchewan. A subgrade log was implemented to enable better retention of subgrade construction information. Work progressed on development of uniform soils sheets for tender documents, as well as on a subdrain inventory and a field instrumentation report.

Site Investigations

Site investigations require test drilling, sampling of soils, testing of soil properties and engineering designs.

The field portion of the site investigation for the bridge replacement over the Carrot River on Highway No. 55 was completed. Site investigations were also undertaken on a number of small bridge sites as well as the Lloydminster railway overpass.

Monitoring of the abutment fills at the Meridian Bridge on Highway No. 17 and Borden Bridge on Highway No. 16 was continued. Slope monitoring instrumentation results for 20 other sites were reviewed on an ongoing basis.

A joint site investigation research program with the University of Saskatchewan was continued to provide a geological-geotechnical framework for future construction along the North Saskatchewan River.

Staff Training

The branch continued its role in providing technical assistance and training to staff in other branches and divisions.

Environmental Liaison

Geotechnical Branch continued its role as the department's official liaison with the Department of Environment. This involves a compilation of the department's capital grading program for submission to the Department of Environment for environmental approval. The long range program was also submitted to obtain classifications for all grading projects. The branch also reviewed and provided comments on environmental legislation or guidelines.

As the official liason with the Department of Culture and Recreation on heritage resource concerns relating to the capital program, the branch submitted and received approval for the current projects as well as obtaining clearance for over 60 projects on the long range program.

Materials Testing Branch

The Materials Testing Branch will:

- provide laboratory and field in-house materials testing services as required by other department units to construct, maintain, design, operate and plan highways, including testing required for materials research.
- provide standards and guidance for materials testing procedures required by other department units and for consultant firms supervising department projects.
- provide engineering expertise in materials quality control and in proper selection of materials and proper handling as required by other department units including the development of specifications for manufactured materials.

More than 16,000 tests were conducted in the central laboratory to evaluate materials for highway design, construction, performance and research. A study was continued into causes of hardening of maintenance asphalt mix stockpiles. Laboratory work was completed for a major study on pavement rutting problems. Expertise was provided by the branch on thin overlay research test sections and on recycled pavements rejuvenated with tall oil pitch. A procedure was introduced for assessing supplier penalties for off-spec asphalt emulsions. With the co-operation of the suppliers, the new method provided a significant improvement in quality. Testing services were also provided to the Department of Rural Development for bridge foundation analysis. In addition, six coring machines and 89 field testing laboratories provided on-the-job testing.

Forty-five portable nuclear density meters, one borehole meter and four asphalt meters were serviced and calibrated for construction project use. A study of bearing strengths was continued using a dynamic vibratory system.

A total of 50 000 km of paved and oil treated surfaces were tested with car road meters to assess riding quality. The tests aid in maintaining appropriate levels of riding comfort on various highway systems.

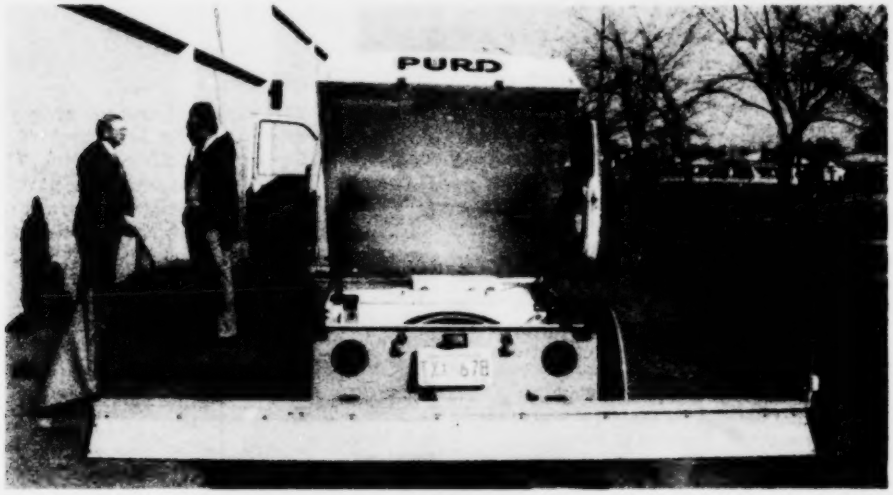
A PURD unit 'Portable Universal Roughness Device' was acquired in 1985 to enhance capabilities of monitoring pavement quality. The equipment can measure rutting defects as well as riding quality and automates collection of condition data for pavement management.

Benkelman Beam deflection tests were conducted on 1580 km of pavements at 17,000 individual locations including tests in five towns and two cities. The tests aid in determining load carrying capacity of pavements and in designing pavement structures. Skid tests were performed on major bridge decks and overpasses and several sections of provincial highways to detect potential slippery areas.

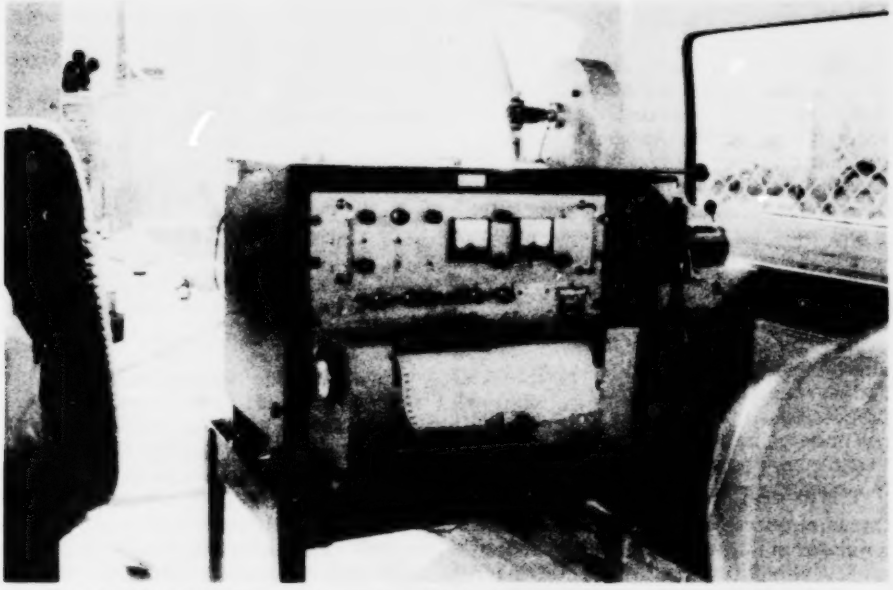
A rotary drill bored a total of 3270 m of test holes to investigate foundation and slope stability conditions for bridge and valley crossings and to provide instrumentation during construction. Sites include the Carrot River on Highway No. 55, Sturgeon River on Highway No. 3, Leather River on Highway No. 335, Souris River on Highway No. 47, Cut-Arm River near Bredenbury and a railway overpass structure at Lloydminster as well as a

number of smaller projects for pavement design and research. Geotechnical work was also continued along the North Saskatchewan River in the areas of Fire Lake, Maymont and Petrofka in conjunction with the University of Saskatchewan. Geological information from these sites provides a better understanding of complex problems in constructing bridges in that area.

Branch staff provided supervisory assistance for several construction projects including asphalt mix designs of the expanding recycled pavement projects. Additional emphasis was placed on materials schools for training of maintenance staff. Field Testing Manuals were completed for use by the department and consultants.



The computer operated high-technology PURD unit assesses surface quality of dust free highways. The trailer unit uses an accelerometer to measure roughness and a horizontal cross bar uses sonic devices to register rutting. Other surface deficiencies are observed visually and entered via keyboards. In photograph, Harold Eley and Abdul Qayyum.



The E-logger (electric logger) is used to identify soil formations in a test borehole. As the test probe is raised in the borehole, a continuous graphical record is provided by natural radiation and the electrical characteristics of the geological strata. The display provides a valuable supplement to conventional borehole sampling and is used to correlate strata from one borehole to another.

Transportation Planning and Research Division

The mission of the division is:

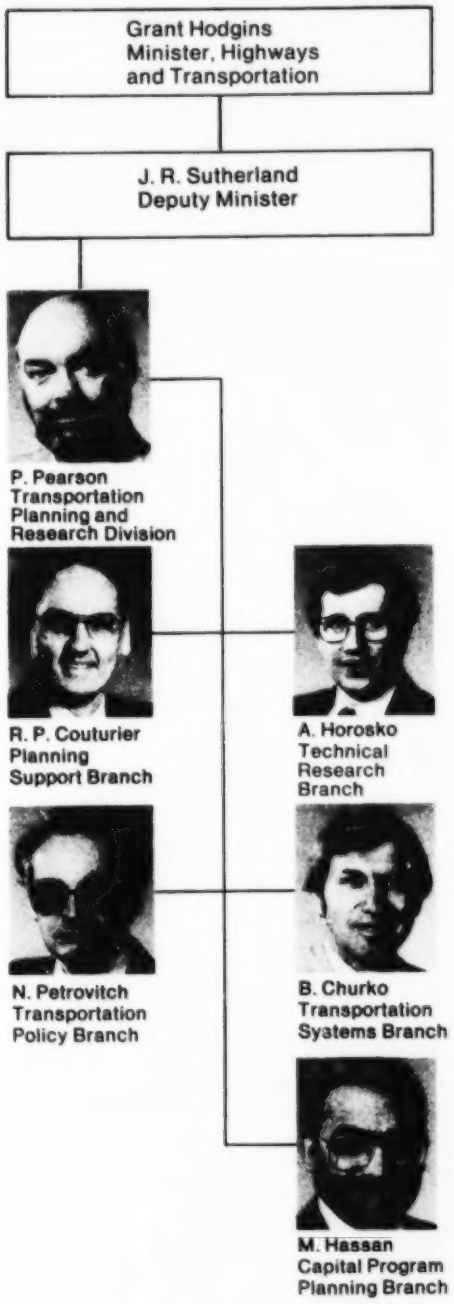
- to formulate policies and programs for the purpose of developing improved transportation systems for the province and to plan for a safe, efficient integrated multi-modal transportation system.
- to prepare initiatives, interventions and responses to further the best interests of Saskatchewan transportation users.
- to provide information and specialized technical assistance concerning transportation to other departments and agencies of the provincial government, and to communities, carriers and transportation users within the province. This includes the development, implementation and monitoring of policies and practices with respect to the movement of dangerous goods by road.
- to arrange for the co-ordination and provision of the technical research required by the department.

A major portion of the activities of the division in 1985-86 was in a consultative capacity with the Federal Government respecting the proposed revisions to the National Transportation Act and the Grain Transportation Agency's review of the Western Grain Transportation Act. The implications of the changes in these two acts will have significant impacts on the province's transportation policies and programs with consequent effects on the provincial economy.

A joint Transport Canada/Saskatchewan study on Rural Transportation Development was launched in 1985-86. The study will deal with Saskatchewan's major export commodities and the transportation system serving these commodities. The study will result in recommendations leading to greater transportation efficiency and productivity.

A major proposal for alternate methods of grain collection on grain dependent branchlines was presented to the Federal Governmment through the McDonough Branchline Inquiry. Two of these alternatives, a hybrid road/rail power unit to deliver and pickup grain cars on branchlines and a short line rail operation will undergo further analysis with a view to implementing demonstration projects this coming year.

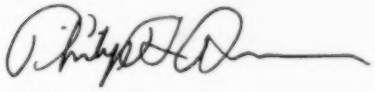
Demonstration projects were initiated on a number of tractor-trailer overdimension and overweight configurations. The tests are being conducted under controlled conditions and are aimed at increasing transportation productivity and efficiency in Saskatchewan's trucking industry. Safety improvements in tractor-trailer coupling devices are also under test.



The division working with Engineering Division conducted a review of the department's surfacing and rehabilitation strategies which resulted in revisions to pavement surfacing design for high and medium traffic volume highways.

The division was also responsible for facilitating the enactment of The Dangerous Goods Transportation Act and the subsequent regulations put forward for on-highway vehicles.

The division consists of five branches. Activities and achievements of individual branches are provided in the following reports.



P. M. Pearson
Executive Director
Transportation Planning and Research Division

Planning Support Branch

The mission of Planning Support Branch is to develop information and statistics on traffic demand and composition, and to plan, recommend, and facilitate programs for northern transportation and special transportation issues. Interdepartmental and intergovernmental liaison and strategy recommendations are also provided on planning, statutory, and regulatory matters that affect the department.

During the year the major activities in which Planning Support Branch was involved in were:

Traffic Analyses

The traffic analysis section, in addition to routine data collection, undertakes special traffic studies, research projects, and provides specialist advice and assistance on matters relating to traffic engineering. Specific activities undertaken involved obtaining traffic volumes on the provincial highway system. Travel on the provincial highway system increased by 1.5% from 1984 to 1985. Truck loadings were studied on community access roads and main streets in smaller communities.

Speeds of vehicles passing through maintenance zones were studied. The average speed in maintenance zones signed at 60 km/h was determined to be 57.9 km/h.

The truck weight sampling process was reviewed to develop an accurate and efficient methodology for truck data collection.

An analysis was made on traffic growth prediction on the provincial highway system which proved useful in pavement management.

The impact of oilfield traffic on pavement loading in specific regions was studied.

The grouping of permanent traffic counters, based on road type, was developed. This technique provided accurate correction factors for adjusting short term traffic counts.

Truck weight data was collected from all permanent weigh scales, and a five year program was developed for the construction of loadometer sites which are used in the enforcement of vehicle weight regulations.

Miscellaneous traffic studies dealing with highway capacity, traffic accidents and traffic operations were conducted, and three technical papers were prepared and presented at various conferences.

A provincial passenger and commodity movement study was initiated for all modes. This overview study will provide an indication of the types and magnitude of passenger and commodity movements within the province for all modes on a macro basis, and will provide information on modal shifts and traffic growth in various sectors.

Northern Transportation

The Lake Athabasca Region Transportation Study which will assess transportation demand was initiated. The scheduled barge service to communities on Lake Athabasca was monitored.

Department procurement of federal funds was obtained from the Northern Economic Development Subsidiary Agreement for the undertaking of improvements to the Cumberland House airstrip.

Planning input was provided on proposed highway extensions to communities and resource developments, and recommendations were provided for transportation capital expenditures which included roads, airfields and dock facilities.

Transportation of Dangerous Goods

The enactment of The Dangerous Goods Transportation Act in June 1985 was facilitated by the branch. Accordingly, the subsequent regulations passed in February 1986 were developed.

The branch undertook the development and delivery of the provincial inspector training program which led to the designation of highway traffic officers, municipal police and RCMP as Dangerous Goods Inspectors. Continual liaison was maintained with local governments, industry and the general public on the application and interpretation of the regulations. Ongoing support was provided to departmental staff with respect to the application of the new legislation and regulations to departmental activities.

The Branch represented the department on the federal/provincial committee charged with the development and the implementation of the program. The branch prepared a submission on the Transportation of Dangerous Goods Program which was presented to the Senate Standing Committee on Transportation and Communication.

Interdepartmental Liaison

Liaison was provided with federal and provincial departments on various transportation matters. Examples were tourism development strategy, disposition of abandoned railway right-of-ways, assessment of Treaty Indian land entitlements, co-ordination of provincial airport facilities, co-ordination of northern development and co-ordination of legislation and regulations as they affect the department.

Technical Research Branch

The mission of the branch is:

- to lead and co-ordinate the establishment of research programs aimed at improving the construction, function, safety and durability of Saskatchewan highways and other provincial transportation facilities.
- to provide or co-ordinate required research efforts or provide assistance and advice with respect to research efforts on behalf of any unit of the Department of Highways and Transportation.
- to make recommendations or provide assistance concerning the implementation of new methods, materials or procedures.
- to monitor and participate in technical research activities involving other governments and organizations.

Materials Research

Materials research accomplishments included the continuation of eight long-term research projects, the establishment of three new projects, assistance with the test track upgrading project and preparation of three technical publications.

Data collection and performance evaluation continued on long term research into:

- asphalt hardening;
- the performance of staged and thin pavements;
- pavements using sulphur;
- ash from coal-fired power stations;
- the performance of variable overlay thickness;
- the performance of rubberized crack seal coats, and
- the performance of seal coats utilizing high float asphalts.

New test sections were established to evaluate crude tall oil pitch as a recycled asphalt rejuvenator and to evaluate a number of thin overlays as alternatives for seal coats. Terms of reference were prepared and consultants commissioned to digitize and complete a crack mapping analysis of the thin overlay test section, to analyse causes of rutting in the thin pavement test section, to propose a program to select appropriate softening asphalts for recycled cold mixes and to undertake a study on Lime Modification of Cohesive Clays.

Transportation Research

Transportation research accomplishments included the completion of two long-term projects, the provision of specialist advice and services, assistance with the test track project and the preparation of one technical report.

Research activity was completed and reports prepared on the investigation of flows in helically-wound corrugated metal pipe culverts and the investigation of airfoil wind deflectors and other devices for making snow plows more visible. A presentation of findings from the snow plow study was made to the occupational health and safety committee.
Development work continued on safety barrier improvements. Specialist advice and services were provided on matters pertaining to traffic safety, roadway lighting, safety barriers, hydraulics, roadway geometrics and videologging.

New projects initiated include a study of ways to reduce the incidence of wild animal accidents on provincial highways and the development, through a contract, of a work plan for an investigation of heavy truck accidents.

Test Track

A major upgrading of the department's test track was initiated in October 1985. The upgrading will improve:

- the quality of the soil strain measurements and the data acquisition system;
- the wheel loading on the test structure; and
- the general environment for electronic equipment and staff working in the building.

A prototype analog strain conditioner was developed and a new data acquisition system was researched and purchased in early 1986. The design and initial machine work to allow the wheel loading system to ride flat and to allow the wheel to be moved across the test structure was also completed. The physical environment of the test facility was improved with the addition of a concrete floor in the central pit. The interior was cleaned up and work was undertaken to provide positive air pressure and conditioned air for electronic equipment in the pit and control room and a power supply to the rotating gantry.

Technology Transfer

Branch staff participated in a number of activities to disseminate research information and to keep abreast of external research activity. Activities included:

- organizing a research seminar in June 1985 with presentations from the University of Saskatchewan and the Australian Road Research Board;
- preparing and presenting papers on the thin overlay test section for the Western Association of Canadian Highway Officials Conference (WACHO) and on Saskatchewan seal coating practices for the Transportation Research Board Conference in Washington;
- preparing technical reports and bulletins on seven topics including the department's Lime Modification experiment, methods for interpreting deflection bowl measurements to estimate pavement and subgrade stiffness values, the geotextile test section and circular corrugated metal pipe culvert inlet modifications to increase flow capacity; and
- participating in joint research projects, conferences, technical societies, national research organizations, Roads and Transportation Association of Canada (RTAC) committees, sub-committees, and workshops and the Government Specification Board Committee on Road Material.

Special Activities

The branch provided support to the department's negotiation effort for both an Industrial Transportation Initiative Program and a Rural Transportation Development Planning Study as part of the Economic and Regional Development Agreement. Negotiations for the Rural Transportation Development Study were successfully completed, Terms of Reference for the study were prepared, a request for proposal issued and responses evaluated.

Transportation Policy Branch

The mission of the branch is threefold:

- to formulate transportation policies for the purpose of developing improved transportation systems and services in support of the economic and social development of Saskatchewan.
- to provide information and expertise regarding extra-provincial legislation and regulations and intergovernmental transportation relations.
- to consult with and provide information and assistance to other government departments and agencies, to Saskatchewan communities and to transportation users and carriers.

During the 1985-86 fiscal year the branch maintained liaison with federal and other provincial and private sector agencies dealing with transportation, developed a Physical Distribution and Transportation Advisory Program and prepared several provincial government submissions to the federal government. The branch was also involved in several major activities discussed below.

Air

The branch is responsible for policy areas intended to influence and improve the level and quality of commercial aviation services and infrastructure affecting Saskatchewan.

Staff continually monitor and assess scheduled air services to, from and within Saskatchewan. This also includes the review of and in some cases the development of interventions concerning air carrier applications before the Air Transport Committee of the Canadian Transport Commission.

Branch staff represented the province on the Community Airport Consultative Committee for both Regina and Saskatoon as well as providing provincial representation to the Road and Transport Association of Canada, the Aviation Management Committee and the Air Transport Association of Canada.

During 1985-86 branch staff were involved in the following major air policy activities:

- developing the air component of the province's official response to the Federal Government's position paper on regulatory reform "Freedom to Move".
- developing positions and providing information on aviation and airport questions concerning the province's involvement in the work carried out by the Neilsen Task Force.
- monitoring and assessing developments concerning Federal Government initiatives in airport management.
- reviewing and preparing a response for the province concerning changes to the Air Transportation Tax.
- assessing and developing an initial provincial response to preliminary negotiations concerning the Canada/United States air bilaterals.
- analysing and assisting in the development of the province's position concerning a Federal Government proposal for airport certification.
- reviewing and providing comments where necessary concerning changes to the Air Carrier Regulations.

Marine

The province continued to provide advice and input to the Federal Minister of Transport on the planning and development of Canada's ports. This is accomplished through the membership of the branch on the Western Regional Advisory Council dealing with ports in British Columbia, the Central Regional Advisory Council dealing with ports in Ontario and the Port Churchill Development Board.

The department continued to support the Port of Churchill Development Board and staff attended board meetings. The board is jointly sponsored by the three Prairie Provinces and its objective is to increase utilization of the Port of Churchill.

Several major studies have been completed under the Canada/Manitoba ERDA Agreement. Branch staff were on the Steering Committee assisting the Prairie Provinces, the Federal Government and the consultant in preparing these studies.

Rail

Capacity Studies

The branch continued to monitor and study rail capacity in Western Canada. Staff attended the second annual meeting of sponsors of the Vancouver Rail Access Study. With lower than forecast traffic, capacity is not currently a problem.

As a follow-up to the Thunder Bay Rail Access Study, which the department jointly sponsored, staff monitored the activities of the Thunder Bay Rail Issues Task Force. This task force has reported on alternative ways of increasing transport and terminal handling capacity and staff will be monitoring implementation of the recommendations.

A study to investigate the opportunity, the problems and the cost of the potential for joint track use of portions of Canadian National (CNR) and Canadian Pacific (CPR) track through British Columbia's Fraser and Thompson Canyons was completed during the 1985-86 fiscal year. Transport Canada, the Canadian Transport Commission, CNR, CPR, British Columbia, Alberta and Saskatchewan are co-sponsors. The study concluded that, given the lower than forecast traffic, independent operation and investment by CNR and CPR was the best current option.

Canadian Transport Commission Hearings

On March 15, 1985 the Canadian Transport Commission announced public hearings to begin in April 1985 on whether their recommendations from the Staggers Act Inquiry should apply to domestic rail traffic and export or import rail traffic handled through Canadian ports. The branch prepared the province's submission to this hearing.

The Canadian Transport Commission held the major public hearing into reduced grain rates (variable rates) proposed by CN Rail, Northern Sales and Cargill Grain in Saskatoon on March 11-15, 1985. The Branch prepared the provincial submission which said that reduced grain rates must not be allowed at selected points but instead they must be applied to all grains from all origins to all destinations.

Branch Lines

As a result of the McDonough Inquiry into Railway Branch Lines announced by the Federal Minister of Transport, the Canadian Transport Commission froze all abandonment decisions on all branch lines with grain handling services. The following table provides details on the current status of Saskatchewan lines not under protection by Federal Order-in-Council.

Saskatchewan Lines Abandoned Pursuant to Canadian Transport Commission's Orders in the Period April 1, 1985 to March 31, 1986

Subdivision	Miles	Point to Point	Date Abandoned
CP Matador	7.5	Gunnworth to Wartime	May 4, 1985
CP McMorran	30.5	Milden to Gunnworth	May 4, 1985
CP Pennant	5.7	Hazlet to Verlo	August 31,1985

Lines Ordered Abandoned by the Canadian Transport Commission Effective Abandonment Date Currently Frozen

Subdivision	Miles	Point to Point
CN Amiens	20.4	Shell Lake to Spiritwood
CN Acadia Valley	23.7	Eyre Junction to Acadia Valley, Alberta
CN Avonlea	21.6	Avonlea to Parry
CP Furness	17.5	Epping to Paradise Valley, Alberta

Lines Ordered Retained by the Canadian Transport Commission Subject to Further Review no Later than Five Years from the Date of the Order

Subdivision	Miles	Point to Point	Date of Review
CN Chelan	13.0	Reserve to Weeks	Before September, 1988
CP Colony	24.6	Rockglen to Killdeer	Before November, 1987
CN Corning	14.4	Peebles to Corning	Before September, 1986
CN Erwood	49.2	Baden, Manitoba to Hudson Bay, Saskatchewan	Before June, 1989
CP Fife Lake	17.7	Coronach to Big Beaver	Before March, 1980
CN Porter	18.0	Oban to Cando	Before August, 1986

Rail Passenger Services

The branch continued its efforts to influence and promote safe, modern and efficient rail passenger service for Saskatchewan.

On June 1, 1985, as a result of recommendations by the Rail Passenger Action Force established by the Federal government in 1984, VIA re-introduced the Supercontinental service between Winnipeg, Manitoba and Vancouver, British Columbia. In Saskatchewan this train serves the communities of Melville, Watrous, Saskatoon, Unity and Biggar. The branch prepared the Saskatchewan government submission on this issue.

On February 24, 1986 the Federal Minister of Transport tabled Bill C-97, the National Rail Passenger Transportation Act in the House of Commons. This Act is significant in that it is intended to provide a mandate for VIA Rail in the provision of rail passenger services in Canada.

Branch staff will be responsible for reviewing this Act and in preparing an official response for the province during the 1986-87 fiscal year.

Grain Handling and Transportation

The branch produced its fourth annual report which monitors and assesses the performance of the grain handling and transportation system.

The branch participated in a joint study on the rail costs of transporting grain with the other Prairie Provinces, the railways and the Canadian Transport Commission. A joint submission was presented to the CTC to assist them in their determination.

Western Grain Transportation Act Review

A review of the Western Grain Transportation Act, passed in November, 1983 was mandated to occur during 1985-86. The branch prepared an extensive Saskatchewan Government submission on the issue and presented it to the Grain Transportation Agency who conducted the review for the Federal Minister of Transport.

Their report and recommendations for changes to the Act are expected to be released during the 1986-87 fiscal year. The branch will be preparing a detailed response.

National Transportation Act Review

The Federal Minister of Transport initiated a major review of national transportation policy with the release of a white paper on July 15, 1985.

The branch prepared an extensive Saskatchewan Government submission on the issue and submitted it to the Federal Minister of Transport and sent copies to the Standing Committee on Transport who had solicited public input.

A new National Transportation Act is to be tabled in Parliament about June 15, 1986. The branch will be assessing the new Act and its progress very closely during the 1986-87 fiscal year.

Physical Distribution and Transportation Advisory Program

This program was developed during 1985-86 to provide a center of expertise and information regarding goods distribution into, within and out of Saskatchewan. The objective is to reduce costs to Saskatchewan shippers, receivers and carriers. The goals of the program are to assist Saskatchewan businesses in maximizing their efficiency and profitability and to enhance the development of new domestic, export and import markets through utilization of physical distribution management techniques.

The program will be delivered in 1986-87.

Transportation Systems Branch

The mission of the branch is to develop and recommend policies, administer programs, and provide specialized technical assistance leading to improvements in cost-effectiveness, safety and adequacy of surface transportation systems.

Rail Systems Unit

Regina Rail Relocation

The unit is continuing to provide costing and technical advice into the Regina Rail Relocation Project in preparation of evidence to be presented at the public hearing before the Canadian Transport Commission (CTC) commencing in September 1986.

Yorkton Rail Relocation

Following several years of providing the City of Yorkton with rail costing and other technical data on rail relocation the unit completed negotiations with Canadian Pacific Railway (CPR) on behalf of the city. A referendum was held on the project and was defeated.

Legislative Reviews

The unit responded to questions by the CTC in reviewing regulations affecting freight traffic interswitching between Canadian railways. The response outlined criteria that would enhance urban industrial strategy without constraints of restricted interswitching.

A submission was made to the Federal Minister of Transport concerning joint line rates, a proposal outlined in the "Freedom to Move" paper which would provide shippers captive to one rail line to have access to the lines of competing rail carriers.

Under the Western Grain Transportation Act a provision entitled "Shipper Share Limitation" was designed to provide protection to grain shippers from excessive freight rate increases and declining grain prices. The unit examined the provision and determined that little protection was provided to Saskatchewan producers. A redefined protection provision was submitted to the Senior Grain Transportation Committee reviewing the WGTA legislation which if incorporated would protect all shippers from freight rates in excess of 6% of the sale price of grain.

Three types of traffic in Saskatchewan would benefit:

- domestic and export traffic through Vancouver and Thunder Bay;
- traffic destined to the US market; and
- extending interswitching benefits to those shippers currently outside the four-mile limit.

Railway Costing

The unit developed a micro-computer program to calculate railway costs and revenues incurred in the movement of grain on a province by province, railway by railway, and line by line basis. The program has assisted the unit in determining the impact on Saskatchewan of proposed legislative changes affecting the movement of grain by rail.

Technical Advisory Function

Concerns have been expressed on the implications for the Saskatchewan potash industry when New Brunswick potash comes on stream. These concerns arise from the perceived impact the Maritime Freight Rate Act (MFRA) might have on established Saskatchewan Eastern North American markets. The unit examined possible implications of the Maritime subsidies on Saskatchewan potash markets and made specific recommendations on ways to reduce the possible negative impact of these subsidies.

The Western Division of the CTC was instructed to conduct an Inquiry (McDonough) into new initiatives with respect to branch line operations. Numerous submissions on the issue were received by the CTC including a substantial submission from the unit. The CTC responded with a report in June, 1985. The unit subsequently provided an advisory function to the CTC, railways and Wheat Pool officials and local producers on the impact of the recommendations of the McDonough Inquiry.

Public Relations

A pamphlet was prepared to inform individuals, communities and local municipalities of the railways' responsibilities to the public in providing and maintaining adequate rail operations.

Road Systems Unit

Bulk Commodity and Timber Transportation Policy

The Road Systems Unit staff negotiated several new agreements with shippers regarding industrial truck hauls pursuant to the terms and conditions of these policies. These included agreements with Avonlea Minerals, Canadian Liquid Air, Simpson Timber, MacMillan Bloedel, Lehner Wood Preservers and Vermette Trucking as well as a number of new letter agreements covering road fees and

vehicle configurations pursuant to other existing agreements. The staff continued to administer all of the industrial truck haul agreements.

Overlength Vehicle Program

Staff continued to test the feasibility of operating overlength vehicles on the two-lane highway system on a night time only basis in conjunction with Motorways Direct Ltd. An evaluation of the test is underway and a report is being prepared.

Overdimension Vehicle Impact Study

Staff initiated a study to determine the impact on the travelling public associated with vehicles that exceed current legal length and width regulations. Phase I of this study will be completed early next year.

Petrofka Bridge Traffic Control System

The Road Systems Unit in conjunction with Trimac Transportation Services Ltd. and Key Lake Mining Corporation implemented a manual traffic control system on the Petrofka Bridge that has enabled these companies to use more efficient vehicles for hauling processing material to Key Lake without making costly bridge upgrading expenditures. The unit also initiated a study to design an automated system for this bridge.

Timber Road Study

A study was initiated to examine the road requirements of the logging industry in northern Saskatchewan. This study should be complete early in the 1986-1987 fiscal year.

Aggregate Transportation Policy

Staff obtained final approval for the policy and several agreements were signed with rural municipalities enabling them to obtain permits for crossing provincial highways while hauling gravel at weights in excess of legal limits. The program is ongoing and will remain accessible to all rural municipalities.

Timber Vehicle Study

The unit in conjunction with trailer manufacturers and timber companies initiated a study with the Saskatchewan Research Council to conduct field tests and evaluate structure/components of vehicles used for transporting raw forest products. The study is to be completed in 1987.

Trailer Load Ratings

Staff from the unit provided technical assistance to trailer manufacturers who were required to have their products load rated in order to conform with the vehicle specifications of the Timber Transportation Road Agreements. Assistance will continue to be provided as required.

Staggered Axle Suspension Asphalt Impact Study

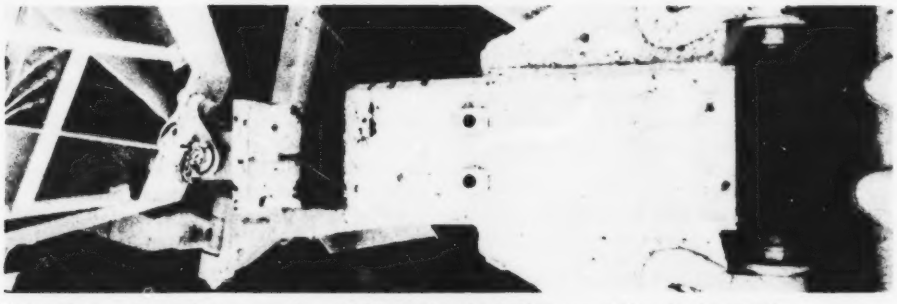
A procedure was developed for analysing and determining the equivalent loading for a quad-axle logging trailer equipped with a new staggered axle suspension assembly. This new concept will not only improve vehicle productivity but will also extend the life of road and bridge structures.

Equipment Testing and Evaluation

The Road Unit in conjunction with Trimac Transportation Services and the University of Michigan Transportation Research Institute have undertaken two demonstration projects to test the feasibility of using a controlled steering style "B" dolly and a linked articulation arm in Saskatchewan commerical truck transport. Both of these devices are designed to improve the stability of combination trailer units.

New Equipment Design Studies

The Road Unit in conjunction with Westank Willock Industries have initiated a study to re-design the axle centering device on Westank's western turntable style "B" dolly. This design study will be completed early next year.



A top down view of the experimental linked articulation arm being tested by the department.

Capital Program Planning Branch

The mission of the branch is:

- to identify and assess present and future demands for provincial highways, provincial and municipal airports, urban transportation assistance and rural transit assistance in Saskatchewan.
- to develop, monitor and evaluate strategic and short-range responses to these demands in terms of capital programs.

Major Activities

Capital Programming

The proposed five-year construction program was reviewed and developed for the period 1986 to 1990, and the recommended 1986-87 capital program and budget were compiled. These activities involved, as in previous years, extensive liaison with Operations Division and its three branches and six districts, and with most branches of Engineering Division.

Development of the capital program and budget involves a great deal of background work, consultation and analyses. Examples include the updating of unit construction costs, and responding to specific requests from the Treasury Board staff during budget review.

In February we reviewed our computer programming used in compiling the five-year construction program and began making a series of major changes that will improve the efficiency of the computerization.

Surfacing and Rehabilitation Strategies Review

A review of the department's surfacing and rehabilitation strategies conducted jointly with Surfacing Branch resulted in a change of surfacing-design strategies; for high volume highways: to a 15-year design from a five-year design; and, for medium volume highways: to a five-year (A-Pavement) design from a "70 percent of five-year thickness" design (B-Pavement). As part of this review, a highway needs simulation model was developed. This model allows simulation of alternative construction standards, priorities, and budgets and their implications on rehabilitation and maintenance levels.

The Road Information Program of Canada (TRIP/Canada) Submission

An assessment of the five-year reconstruction and resurfacing needs on Saskatchewan's oil-treated and gravel provincial highways was made for inclusion in the country-wide highway needs survey conducted by the Canadian Construction Association under its TRIP/CANADA program. The results were combined with the paved highway needs developed in 1984, and published by TRIP/CANADA in February 1986.

Transportation and Highway Needs Studies

The following are the major needs studies conducted during 1985-86:

- four-laning needs on the Trans-Canada and the Yellowhead Highways for submission to Transport Canada;
- long-range (ten-year) requirements for urban transportation assistance;
- need for the extension of Highway No. 17 from Onion Lake to Highway No. 55; and
- study of past accomplishments and future requirements on highways in the Lloydminster heavy oil region.

Urban Transportation Engineering

Professional engineering input was provided on urban transportation issues confronting the department such as: reviewing the urban assistance policy in conjunction with Operations Services Branch, developing new highway route maps for the 12 cities depicting the designated highway routes for use in conjunction with the revised urban assistance policy, and providing technical assistance on cost-shared urban transportation studies like the Yorkton transportation study, Saskatoon Circle Drive functional planning study and the Regina Albert Street and Memorial Bridge study.

Grid Road Takeover Policy

On May 1, 1984 the department implemented a Grid Road Takeover Policy which stipulates minimum criteria that must be met before a rural municipal road would be considered by the department for inclusion into the provincial highway system. During 1985-86 32 grid road takeover requests were evaluated with respect to this policy.

Inventories and Statistics

The following inventories for which the branch is responsible were updated: highway inventory, inventory of primary and secondary community airports and highway-railway grade crossing inventory.

The branch also compiled highway length and expenditure statistics for Statistics Canada and the Roads and Transportation Association of Canada.

Professional Publications

The Branch staff presented four papers at professional conferences:

- "Provincial Highway Financing Requirements", Proceedings of the Workshop on Highway Finance, March 1985, Toronto, Ontario;
- "A Macro Evaluation of the Saskatchewan Highway Safety Improvement Program" and "A Synthesis of Provincial Urban Roadway Assistance Programs", Proceedings of the Annual Conference of Western Association of Highway Officials, April 1986, Edmonton, Alberta; and
- "A Critique of the Provincial Highway and Transportation Expenditure Reporting Systems" by M.U. Hassan, Proceedings of the Annual Conference of Roads and Transportation Association of Canada, September 1985, Vancouver, British Columbia.

Technical and Specialist Services

A significant proportion of staff resources was utilized to provide specialist advice and assistance to senior management, other units of the department and extra-department units on matters related to highway planning, location and design standards, and to capital program related policies. Examples of such activities include:

- preparation of briefs, letters and background papers pertaining to the Saskatchewan Association of Rural Municipalities, Saskatchewan Urban Municipalities Association, Yellowhead Highway Association, Saskatchewan Roadbuilders, urban and rural municipalities, members of the public, and federal and other provincial governments;
- representation on intra and extra-department committees, such as the "Federal/Provincial/Territorial Committee for Disabled Travellers", and the "Standing Interdepartmental Co-ordinating Committee on Aging"; and
- technical assistance for various studies such as the functional study of the junction of Highways No. 9 and No. 10 in Yorkton.

Regulation and Traffic Safety Division

The mandate of this division is to promote legal, safe and economic operations concerning commercial and private vehicles within the province. This mandate is met within three working units, namely, Transport Services Branch, Driver and Vehicle Safety Services Branch and Highway Traffic Board Services Branch.

The division performs support functions for the Highway Traffic Board by developing policy options for possible implementation, administering the daily functioning of the board, and by requesting or implementing board decisions.

Two major initiatives in regulatory reform were undertaken in accordance with the agreement reached by the Council of Ministers Responsible for Transportation and Highway Safety in February 1985.

A list of 32 commodities to be considered for ease-of-entry was developed in consultation with Alberta and Manitoba. Public meetings were held in all three provinces to obtain public input and reaction. Public information meetings were also held throughout the province. At these meetings procedures for reverse onus were outlined and again public input was encouraged.

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Executive Director
Regulation and Traffic Safety Division

Grant Hodgins
Minister, Highways
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Regulation and
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Transport
Services Branch

C. Shiels
Traffic Safety
Services Branch

P. Landry
Highway Traffic
Board Services
Branch

Highway Traffic Board Services Branch

The Highway Traffic Board Services Branch acts as a support group to the other two branches of the Regulation and Traffic Safety Division. It provides administrative support to the division and conducts policy development and analysis on specific topics assigned to it by the Chairman of the Highway Traffic Board. As well, it co-ordinates the processing of all accounts and invoices for the division.

In 1985-86, branch personnel became involved in written decisions resulting from public hearings stemming from applications for operating authority certificates.

The branch co-ordinated the development of the first major changes to The Vehicles Act, 1983. It also worked on amendments to The Vehicles Act, 1983 resulting from changes to the Criminal Code. Several changes to the Regulations were developed.

The branch continued discussions with other agencies on the establishment of speed zones throughout the province. As a result, a province wide speed zone registry has been established.

A system of manuals for use by members of the Highway Traffic Board and employees of the division continued to be developed in 1985-86. The system assists in ensuring the effective implementation and maintenance of established policies and procedures.

The branch developed an implementation strategy for a new program which would allow certain non-profit groups to receive limited compensation when transporting certain types of passengers on what would essentially be a 'charter' operation.

In May 1985, Saskatchewan hosted the Annual Meeting of the Canadian Conference of Motor Transport Administrators. Branch staff worked on arrangements for the annual provincial government banquet at which the feature speaker was the Minister of Highways and Transportation. Saskatchewan Government Insurance staff participated extensively towards the success of this project.

Driver and Vehicle Safety Services Branch

Up-to-date computer records are maintained on each of Saskatchewan's 647,121 drivers. The Driver Records and Control Section carried out 135,000 driver file updates and administered 12,500 statutory licence suspensions. A total of 357 driver files were referred to the board for consideration and possible action on matters such as medicals, licence suspension appeals and poor driving records.

A total of 3,769 drivers, convicted for the first time of alcohol related driving offences, took advantage of the early licence reinstatement program. To qualify, they were required to complete an application and submit a $150 driver licence fee, successfully complete a Driving Without Impairment Program (D.W.I.), and serve at least three months of the six month suspension.

Driver Development

The Driver Development Section is responsibile for carrying out written, vision and practical tests of all applicants for driver licences. This section also conducts special assessments of senior and handicapped drivers and interviews drivers who accumulate bad driving records.

Except for residents of Saskatoon, Lloydminster and Regina, all appointments for driving tests and interviews are booked through a toll-free central booking office in Moose Jaw. By monitoring demand throughout the province and re-assigning staff time accordingly, the toll-free booking office has been able to reduce waiting periods for driving tests.

The section is continuing staff development related to new approaches to driver development. Nine driver development officers attended a three week course in the early part of 1986. The course included instruction on advanced driving techniques and basic driver training following a revised in-car curriculum developed in co-operation with the Department of Education. The new curriculum closely follows the methods described in the new driver's handbook.

Vehicle Standards and Inspection

Periodic inspection programs for school buses, buses, semi-trailers, power units, and vehicles converted to pressurized fuel continued to operate throughout the year. A program for the inspection of Saskatoon taxis was introduced in February of 1986.

Inspections are conducted annually under the school bus, bus and semi-trailer inspection programs. During the year 3,280 school buses, 910 buses and 6,512 semi-trailers were inspected under their respective inspection programs.

A total of 6,711 power units were inspected under the power unit inspection program conducted semi-annually. Under the Liquid Petroleum Gas Inspection Program, 980 vehicle inspections for pressurized fuel conversions were carried out.

Research and Co-ordination

The Research and Co-ordination Section provides liaison between Driver and Vehicle Safety Services and other departments of government, other levels of government, non-government safety groups and the public. In addition, it provides a research facility for the other sections in the branch and initiates research projects on behalf of the branch. The section was involved in the development of study designs related to the D.W.I. program, probationary licences and a survey of night-time drivers.

Transport Services Branch

The mission of this branch is to facilitate the development of an adequate, safe and efficient motor carrier industry that adheres to the principles of public service protection. This is accomplished through two working units, the Transport Regulation Section and the Transport Compliance Section.

In fulfilling its mandate, the branch has the following objectives:

- ensuring that the necessary motor carrier services are available so that the reasonable economic and social requirements of most people are satisfied through accessibility of service, frequency of service, reliability of service and quality of service.
- promoting efficient transport services that encourage the optimal allocation of transport resources.
- promoting equitable transport services that allows for the delivery throughout the province of similar levels of service at similar prices.
- promoting the development of a safe transport system that operates with minimal loss of life, injury, damage to property, and minimum social costs through safely operated vehicles, properly maintained vehicles and protection from dangerous commodities.

This branch oversees the development of policy and recommendations for the board with respect to the degree of regulation that is appropriate for the various sectors of the motor carrier industry.

The branch is also responsible for the development and delivery of programs that, process operating authority applications and maintain carrier records; provide carriers with a 24-hour permit service; review carrier fitness on an ongoing basis; establish policy and provide information on vehicle registration requirements; develop conditions of carriage and rate regulations; answer shipper, carrier and public enquiries; and provide administrative support for the board.

The branch is responsible for the enforcement of, and compliance with, the laws and regulations governing the movement of goods and people on provincial roads. To this end, the Highway Transport Patrol and investigation responsibilities include vehicle weight and dimension, operating authorities and registration, vehicle and driver safety, and conditions of carriage and rates. There is also a major degree of input into the development of statutes and regulations.

Transport Regulation Section

The various sectors of the Saskatchewan motor carrier industry are subject to varying degrees of regulation. This regulation, economic and non-economic, is designed to ensure adequate freight and passenger service to Saskatchewan residents and includes:

- prescribing service levels;
- controlling entry into the market with respect to issuance of operating authorities and permits;
- analyzing carrier financial and operating costs and recommending changes in the rate structures;
- establishing the conditions of carriage under which carriers are allowed to operate; and
- reviewing carrier compliance records to ensure acceptable operating standards are maintained.

Operating Authorities

Operating authority administration involves processing motor carrier applications for new authorities, providing administrative support to the public hearing process, monitoring carriers for fitness, and instituting disciplinary action. As well, a consumer relations function provides information services regarding the responsibilities and services provided by for-hire carriers. In 1985-86, 398 applications for operating authority were processed, of which 294 were from for-hire carriers.

This fiscal year marked a major turning point in regulatory reform. In accordance with the Memorandum of Understanding agreed to by provincial and federal ministers of transportation, the Highway Traffic Board is developing a package of motor carrier reforms for introduction early in the new fiscal year. Extensive consultation has taken place with industry and public groups resulting in new regulatory policies and procedures. Currently, the onus is on those applying for operating rights to show a public need for their service. With the "reverse onus" test in effect, the burden of proof will shift to those who object to an application. At the same time an "ease of entry" list of 32 groups of commodities will be available to those carriers who can demonstrate fitness, that is, can satisfy insurance, safety and compliance requirments and have no outstanding permit, licensing or E and H fees. The "reverse onus" test was developed under a national agreement and the "ease of entry" list resulted from joint Manitoba/Saskatchewan/Alberta hearings. The net effect of these changes will be to create more opportunities for truckers in obtaining operating authorities, reinforce public safety and carrier fitness, and will reduce the private and public costs associated with regulation.

Fitness Review

One of the policies of the Highway Traffic Board is to promote compliance with all of the transport laws and regulations by those involved in the motor carrier industry.

A central registry of all transport law violations, along with a recording of the violators is maintained, and continuously reviewed. In accordance with predetermined levels, registration and/or authority holders are subject to action in the form of warning letters and counselling sessions.

During the past year, approximately 80 letters were forwarded to carriers providing information on the Motor Carrier Disciplinary Policy and warning of the need to improve compliance levels. These letters provided carriers with information on convictions and an opportunity for the carrier to voluntarily improve his level of compliance.

Three carriers continuing to incur convictions following the initial warning were requested to meet with the Compliance Review Committee.

Carriers making new applications for authority had their records under the Motor Carrier Disciplinary Policy reviewed. Where warning letters had been issued; the carrier was required to discuss the compliance record with the board and develop proposals for improvement before consideration would be given to granting the authority.

Vehicle Registrations and Permits

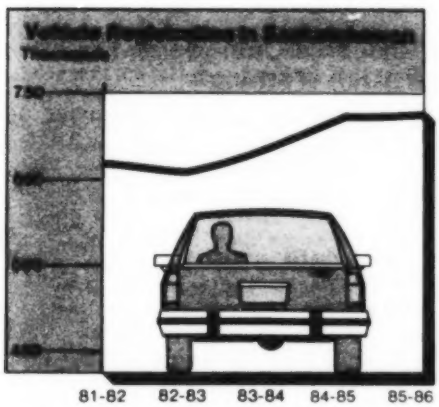
The vehicle registration and permit policy has been established to meet the needs of approximately 830,000 vehicles requiring registration in Saskatchewan.

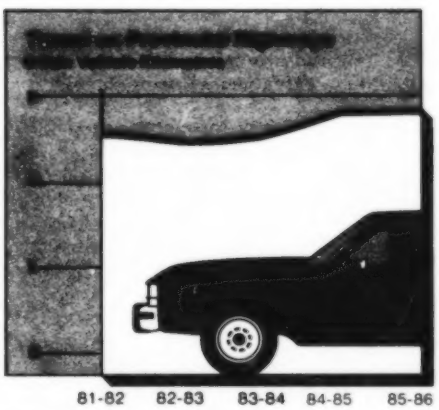
Personalized licence plates are availale for both private passenger and farm vehicles.

Number of Vehicles Registered

(as at December 11, 1985)

Class	Description	Number of Vehicles Registered
A	Public Service	2,042
AG	Public Service — Rural General Merchandise	200
C	Commercial Vehicle C	20,524
D	Commercial Vehicle D	27,651
F	Farm Truck	161,200
R	Registered Farm Vehicle	2,597
PV	Private Vehicle	495,745
T	Private Trailer	86,977
TS	Commercial Trailer	11,929
PB	Passenger PSV Bus	155
PC	Passenger City Bus	384
PS	Passenger School Bus	3,360
PT	Taxi	552
MT	Motor Toboggan	10,227
L	Licensed Auto Dealer	3,612
LT	Licensed Trailer Dealer	81
GC	Federal Government	2,000
	Total	829,236





In conjunction with a national agreement which calls for administrative simplification and uniformity, a system known as "one stop shopping" is being developed for interprovincial carriers. This system will allow a carrier to satisfy all registration and related requirements through his home registration office for all Canadian jurisdictions in which travel is intended. The Vehicle Registration Unit has begun work in this area with a planned implementation date of July 1, 1987.

A central permit operation has continued on a round-the-clock basis to service the motor carrier industry. Permit authorizations for operating authorities, vehicle registrations, and weight and dimension authorities are provided. In 1985-86, 61,988 permits were issued, which generated revenues of approximately $2.6 million.

Board Affairs

This unit provides the secretarial support for the Motor Carrier Committee of the Highway Traffic Board. The Secretary of the Highway Traffic Board assists applicants by counselling them on hearing procedures, by encouraging pre-hearing meetings, by scheduling hearings both within Saskatchewan and in co-operation with other provinces' transport boards for the convenience of parties to the hearing. Essentially, the board makes every attempt to expedite the application process. Over the last year, public hearings were held to consider 35 applications.

Conditions of Carriage, Rates and Carrier Studies

This unit develops, co-ordinates and evaluates research into motor carrier

sector trends, and proposals regarding conditions of carriage, rates, and service standards. In 1985-86 major studies included:

- a revised general merchandise cost formula;
- various reciprocity agreements with the United States;
- a review of various motor carrier sectors;
- a review of regulatory procedures; and
- a review of "ease of entry" and "reverse onus" regulatory systems.

Transport Compliance Section

This section is composed of the Saskatchewan Highway Patrol and the Transport Investigations Unit who police the road transportation industry.

The mandate of this law enforcement group is to promote compliance with rules which protect highways and govern the movement of vehicles, goods and people over them. Primarily, officers interface with the bus/truck industry, but they have the authority to promote highway safety for all vehicles by taking action on flagrant violations when encountered.

For organization purposes, the province is divided into three regions which contain a total of 18 enforcement areas. Uniformed staff are employed on patrol or at one of 14 permanent weigh scales and investigative staff operate from the major centres. Activities are carried out around the clock. Their main enforcement programs cover weight and dimension, economic regulation (operating authority and registration) and vehicle/driver safety.

In September, traffic officers began wearing new uniforms which replaced the traditional kahki. They include a light brown cap with matching slacks and a darker brown tunic or jacket.

In 1985-86, Compliance staff were responsible for conducting 138,508 weight and dimension inspections, 25,718 safety inspections and 36,195 consultations on a wide variety of transportation related matters. Officers participated in 58 public meetings, discussing the law related to road transportation.

On February 1, 1986, this section began promoting compliance with the new Dangerous Goods Transportation laws on Saskatchewan highways. All compliance staff were trained and certified as Dangerous Goods inspectors for Saskatchewan. Their duties include examination of vehicles, cargo and documentation and verification that the driver possesses a training certificate. Currently, senior dangerous goods inspectors are training the Saskatchewan police community.

On February 13, 1986, a new weigh scale opened on Highway No. 16 east of Lloydminster to improve service to the motor carrier industry in western Saskatchewan.

Of the charges and written warnings issued to companies, approximately 50% went to carriers based outside the province reflecting the high level of trucking into and through the province. A description of the more serious offences disclosed during the past year follows.

Review of Charges and Written Warnings

Economic Regulation	**1985-86**
Registration	1,410
Operating Authority	610
Other	–
Total	**2,027**
Weight and Dimension	
Overweight	2,404
Overwidth	370
Overheight	125
Overlength	49
Total	**2,285**
Vehicle and Driver Safety	
Vehicle Inspection Program	504
Equipment Offence	522
Driver Licensing	323
Rules of the Road	732
Miscellaneous	204
Total	**2,285**
Grand Total	**7,260**

Violation Rate

	Location of Inspections	**% In Violation 1985-86**
Economic Regulation	At Weigh Scale	10.4
	On Patrol	13.5
Weight and Dimension	At Weigh Scale	11.7
	On Patrol	20.8
Safety (vehicle and driver)	At Weigh Scale	19.8
	On Patrol	23.6

Support Services Division

The mission of the Support Services Division is to provide services essential to the overall efficient management and operation of the department.

The primary services are in the areas of staffing, personnel management and training, financial management and control, management and administrative systems, computer services, property acquisition and property management.

Organizationally, the division is structured on a functional basis with each of four branches, Human Resource, Management Services, Financial Services and Property Services, providing the department with a specialized service.

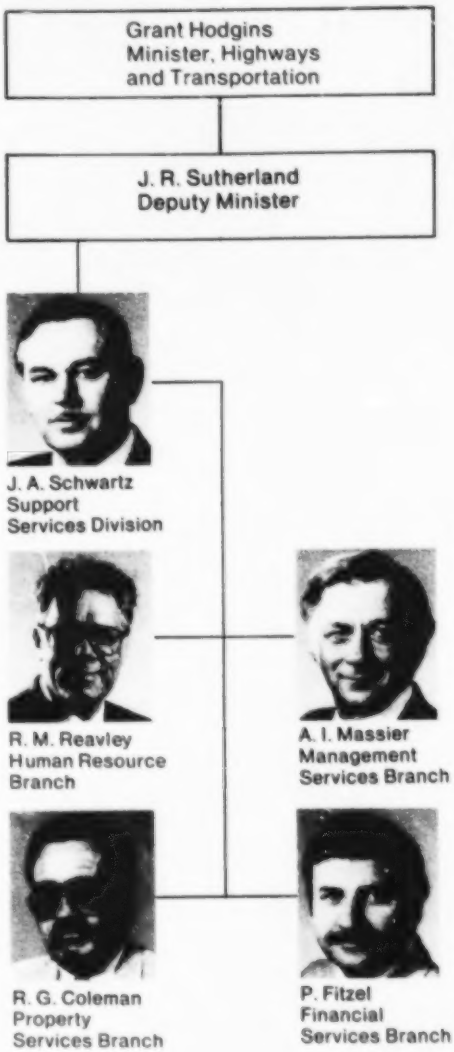
The new management classification plan was implemented on September 1, 1985. Managing Human Performance training was provided to all out-of-scope staff. A new performance appraisal system was developed and implemented for use in 1986-87.

The department continues to keep abreast of the latest technology in the field of systems and communications. A study of our five-year electronic technology needs has been completed and implementation of year one of the plan will take place in 1986-87.

An organization review of the Financial Services Branch is near completion. The primary objective of the review is to improve the quality and timing of financial services to department units and external agencies. Implementation of the organization changes will be phased in during the next fiscal year.

Productivity improvement initiatives and accomplishments are being pursued and achieved on a continual basis. Details of specific services and accomplishments are provided in the following individual branch reports.

J. A. Schwartz
Executive Director
Support Services Division



Human Resource Branch

The mission of Human Resource Branch is:

- to provide assistance and guidance in areas of management of human resources, employee benefits, industrial safety, industrial relations, staffing, classification, staff training and development;
- to identify training needs and to develop and deliver programs to meet those needs; and
- to conduct manpower planning activities to ensure that the department will continue to have employees with the necessary skills to carry out its programs in an effective and efficient manner.

Major activities of the branch included:

- a three day training course in "Managing Human Performance" was given to all department managers/supervisors;
- a performance appraisal program was implemented during the year and all management employees were appraised at year end;
- branch participation in the negotiation of the Collective Agreement; and
- providing guidance and assistance to department managers in areas of the management of human resources, employee benefits, industrial safety, industrial relations, staffing, classification, staff training and development.

Labour Relations

Problem solving meetings were held with the union on an on-going basis to resolve problems before they became formal grievances.

During the year 30 grievances were received, six of which have been resolved and the remaining 24 are in various stages of the grievance process. In addition 22 grievances that were received in previous years were resolved during the year.

Staffing and Reclassification

Competitions were held to fill 65 public service and 150 labour service vacancies.

There were 17 employees who requested a review of their jobs to determine if they were properly classified.

Training and Development

The department maintained its emphasis on employee training and development activities during the year. Courses included management, supervisory, technical, trade and equipment operation.

A total of 230 employees attended 73 courses with a combined total of 1,147 training days related to supervisory training and management development. Courses included:

- Proactive Management of Conflict and Change
- Situational Leadership
- Managing Human Performance
- Dale Carnegie Management Seminar
- Memory Systems
- Time Management
- Effective Writing
- Management of Special Projects
- Exec-U-Speak
- Making Presentations
- Interpersonal Communications
- Microcomputers for Beginners
- Behavioral Communications
- Financial Management for Non Financial Managers
- Managing Stress

The equipment training section conducted 95 courses, attended by 802 employees, for a total of 872 training days. Courses included:

- Air Brakes
- M.D.O. Training
- Preventive Maintenance
- Welding
- Reclassification of Drivers License

Safety Section

A major objective of the department is to provide a safe working environment for all employees. The promotion of safety and training in the interest of injury and loss prevention, both on and off the job, forms an intergal part of the Industrial Safety Program.

The following safety training was provided to employees:

- 684 person days First Aid training
- 570 person days of training in Defensive Driving and Professional Driving Courses

- 45 person days of Fire Fighting and 221 person days of Flag Person training
- courses were offered in Accident Causes, Occupational Health and Safety Committee training and Chemical Substances throughout the year
- 1,112 employees participated in work site safety meetings conducted by Safety staff members

Regular public safety and work place inspections were carried out in order to reduce the possibility of injuries to the general public and department staff.

Safety Section staff members attended 15 Occupational Health Committee meetings at various locations in the province in order to assist committees in functioning more effectively, and to provide guidance on safety matters.

Management Services Branch

Management Services Branch is responsible to provide, assist in and promote the analysis, development, implementation, operation and maintenance of effective and efficient Management Information Systems for the department. Some of the major activities are:

- developing and implementing Management Information Systems to meet the needs of the department.
- providing data processing services.
- training user branches and districts in the operation of data processing equipment, related procedures and applications development.
- actively monitoring systems so that program managers at all levels have information available to review quantity, quality, time and cost status for each of their programs.
- co-ordinating and conducting organizational reviews of department units.
- providing liaison with other departments and agencies of government in the carrying out of assigned duties.

The branch is continually involved in developing methods and procedures to improve productivity, and assisting managers in making better management decisions.

Major Activities

A five year electronic technology plan was developed for the department. This outlines the plans for the future. Some of the major items included are:

- the department should co-ordinate the acquisition of electronic equipment to ensure adequate communication links exist between current and future installations. There should be no equipment acquired that does not communicate throughout the network. All workstations should be multifunctional so that they can be used for any function desired, including:
  - Data entry
  - Word processing
  - Messaging
  - Spread sheets
  - Graphics
  - Data processing
  - Entry or retrieving of information from SaskComp
- the department should develop electronic messaging so that a message can be sent to anyone in the department that has computer equipment. The plan is to implement a complete electronic mail environment.
- information should be managed as a scarce resource. Any information on an electronic media should be available to any user in the format they require.

A number of proposals for the supply of electronic equipment which will fulfill the short and long term needs of the department are currently being evaluated.

A new data security system was implemented. Since data is a valuable corporate asset, it is important that the integrity of this data is maintained.

Major modifications were made to our financial information systems to supply more timely financial information to department managers. Computer programs were written to ensure that our information is correct and agrees with the records maintained by Revenue and Financial Services.

To improve the management of the department owned construction and maintenance equipment, a users committee was formed. This committee is given the task of defining users needs for information. Many of these needs have been fulfilled by developing retrievals from the Equipment Management Information System.

New computer equipment was installed at the Materials Testing Lab to improve their productivity. This computer is now used for many of the office functions including word processing, data entry and computer processing. Data measuring the riding quality of highways is now fed directly into the computer. Analyzed information is then transmitted to the respective district and area offices.

Property Services Branch

Property Services Branch is responsible for:

- the appraisal and negotiation for land for various department programs.
- arranging for the legal survey services required in connection with departmental right-of-way and public improvement projects.
- the registration of rights to property to meet the department's construction schedule and the Grid and Main Farm Access Road Program.
- payment for various related services and for land where title has been secured.
- the management of property rights under the jurisdiction of the department pertaining to public highways and public improvements.

Property Acquisition

In excess of 1,000 purchase agreements and contracts were negotiated over the past year, having a total value of $2.5 million. Some of the major projects purchased were the right-of-way for the new Highway No. 41 east of Wakaw, the right-of-way for the second set of lanes between Indian Head and Sintaluta and a start on the purchase of the properties required for four-laning east of Lloydminster. In total, properties were purchased on 74 department projects. This work was carried out by a staff of seven with a negotiated success rate of 99%.

Property Management

The volume of requests for consents and permits rose significantly during the year, however, revised procedures for handling certain types of requests for use of department controlled property reduced the processing time. Staff was, therefore, able to maintain the targeted level of service. Some of the activities carried out by this section were:

- district meetings held with regards to the determination of the status of properties identified in the Property Inventory System;
- meetings held with outside users of provincial and public highway properties to bring about a streamlining of the permit/consent system; and
- branch files which date back to the first surveyed roads in the province were examined, stripped and retained material placed on microfilm. A significant amount of data was provided to the Provincial Archivist as historical material.

Property Registration

Legal survey services were secured and plans of survey and other legal documents were produced for registration in the Land Titles System in time to meet department maintenance and construction needs.

1985-86 Accomplishments

Plans of Survey recorded (all types)	1,164
Road and Public Improvement plans processed	270
Road and Public Improvement plans registered	275
Public Improvement and misc. surveys contracted	20
Provincial highway surveys contracted	259 km
Consents and Permits issued	1,727
Property agreements paid	811
Property agreements negotiated	1,056

Financial Services Branch

The mission of Financial Services Branch is to provide centralized financial services and timely required management information for department managers, and government agencies, within specified guidelines and regulations in the areas of:

- co-ordinating, processing, recording and maintaining records of financial transactions including payrolls, accounts payable, accounts receivable, requisitioning, and inventories.
- revolving fund administration.
- co-ordinating and monitoring administrative and revolving fund budgets and fiscal forecasts.

The branch processes payments and receipts, maintains records and produces financial and statistical reports. The branch also schedules and co-ordinates the preparation of the department's annual administrative budget, and the highways revolving fund budget. Fiscal forecasts are prepared for Treasury Board Division on a regular basis.

The payroll unit of the branch produced in excess of 23,500 labour service cheques during the year, and processed the salaried payroll for all public service employees in the department.

On April 1, 1985 the branch went on-line with the new government-wide Revenue and Expenditure System (RES).

During the year, a number of financial analysis reports were designed to provide management information on the department's stores inventories and equipment fleet.

An organization review of the branch was conducted during the year and implementation of the recommendations will take place in 1986.

Appropriation and Expenditure 1985-86

	*Appropriation	Expenditure
Ordinary		
Executive Administration	$ 908,060	$ 968,224
Financial Services Branch	760,910	701,291
Human Resources Branch	845,070	794,609
Transportation Planning and Research Division	4,305,660	2,472,779
Property Services Branch	863,950	765,386
Works Branch	112,840	110,237
Communications Branch	850,970	1,170,015
Operations Services Branch	943,230	1,029,563
Engineering Division	2,147,520	2,211,204
Traffic Safety Engineering Branch	320,270	338,086
Bridge Branch	414,780	400,559
Swift Current District	1,329,900	1,345,051
Regina District	1,742,440	1,806,815
Yorkton District	1,170,920	1,266,934
Saskatoon District	1,011,940	1,129,855
Prince Albert District	1,723,190	1,837,091
North Battleford District	1,502,450	1,563,709
Management Services Branch	1,158,620	1,144,005
Grants	177,920	176,903
Driver and Vehicle Safety Services Branch	2,618,370	2,597,780
Transport Services Branch	2,881,910	2,757,993
Highway Traffic Board Services Branch	582,490	533,137
	$ 28,373,410	$ 27,121,226
Maintenance	83,588,650	84,390,282
	$111,962,060	$111,511,508
Capital		
Rural Surface Transportation	$ 89,000,000	$ 98,768,081
Urban Surface Transportation	5,200,000	4,988,344
Air Transportation	400,000	427,593
	$ 94,600,000	$104,184,018
Total	$206,562,060	$215,695,526

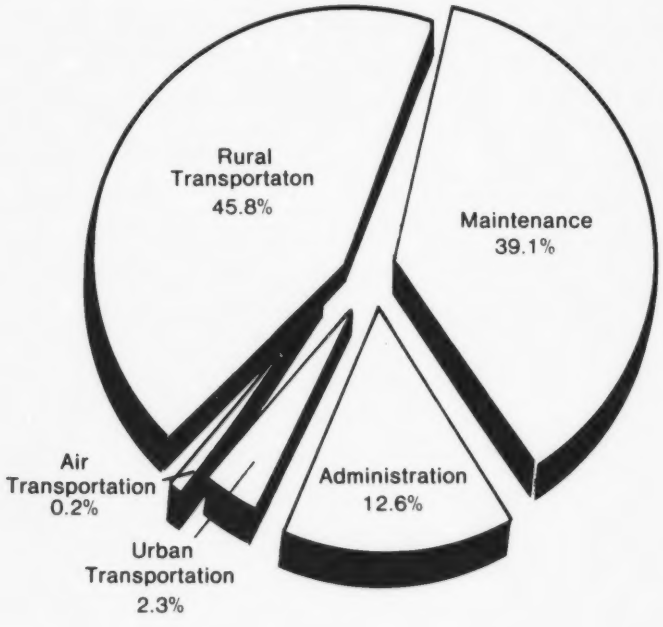
Special Warrants

*Appropriation does not include special warrants:

Capital	$ 11,500,000
Ordinary	2,360,000

*The effect of virements is not reflected in these amounts.

1985-86 Expenditure Breakdown



Accumulated Expenditure to Date

Fiscal Year	Current Year	To Date	Fiscal Year	Current Year	To Date
1905-06	$ 49,546	$ 49,546	1946-47	6,312,801	103,206,424
1906-07	484,177	533,723	1947-48	8,840,535	112,046,959
1907-08	1,041,383	1,575,106	1948-49	8,853,999	120,900,958
1908-09	1,443,335	3,018,441	1949-50	8,767,610	129,668,568
1909-10	591,957	3,610,398	1950-51	10,118,744	139,787,312
1910-11	610,920	4,221,318	1951-52	12,823,535	152,610,847
1911-12	614,356	4,835,674	1952-53	18,919,646	171,530,493
1912-13	2,525,188	7,360,862	1953-54	19,135,070	190,665,563
1913-14	1,970,135	9,330,997	1954-55	20,395,779	211,061,342
1914-15	2,370,439	11,701,436	1955-56	20,127,262	231,188,604
1915-16	831,594	12,533,030	1956-57	24,140,190	255,328,794
1916-17	536,594	13,069,624	1957-58	24,491,369	279,820,163
1917-18	815,438	13,885,062	1958-59	23,697,574	303,517,737
1918-19	616,472	14,501,534	1959-60	23,104,119	326,621,856
1919-20	1,306,370	15,807,904	1960-61	25,237,066	351,858,922
1920-21	1,804,973	17,612,877	1961-62	21,591,307	373,450,229
1921-22	2,495,925	20,108,802	1962-63	22,094,828	395,545,057
1922-23	2,201,358	22,310,160	1963-64	24,167,674	419,712,731
1923-24	2,037,295	24,347,455	1964-65	27,152,511	446,865,242
1924-25	2,229,408	26,576,863	1965-66	40,679,979	487,545,221
1925-26	2,123,173	28,700,036	1966-67	54,387,704	541,932,925
1926-27	2,660,195	31,360,231	1967-68	60,227,543	602,160,468
1927-28	2,488,961	33,849,192	1968-69	60,110,923	662,271,391
1928-29	4,228,261	38,077,453	1969-70	58,560,829	720,832,220
1929-30	6,664,400	44,741,853	1970-71	68,081,718	788,913,938
1930-31	10,703,359	55,445,212	1971-72	66,933,052	855,846,990
1931-32	8,149,746	63,594,958	1972-73	63,362,093	919,209,083
1932-33	905,374	64,500,332	1973-74	69,456,878	988,665,961
1933-34	862,029	65,362,361	1974-75	96,760,356	1,085,426,317
1934-35	1,661,983	67,024,344	1975-76	110,162,524	1,195,588,841
1935-36	1,620,142	68,644,486	1976-77	123,321,325	1,318,910,166
1936-37	2,595,381	71,239,867	1977-78	132,425,146	1,451,335,312
1937-38	2,823,356	74,063,223	1978-79	160,610,850	1,611,946,162
1938-39	3,509,280	77,572,503	1979-80	158,107,523	1,770,053,685
1939-40	3,399,603	80,972,106	1980-81	168,287,313	1,938,340,998
1940-41	1,706,382	82,678,488	1981-82	191,474,090	2,129,815,088
1941-42	1,874,917	84,553,405	1982-83	192,829,361	2,322,644,449
1942-43	2,126,374	86,679,779	1983-84	215,968,431	2,538,612,880
1943-44	2,918,157	89,597,936	1984-85	214,979,173	2,753,592,053
1944-45	3,387,320	92,985,256	1985-86	215,695,526	2,969,287,579
1945-46	3,908,367	96,893,623			